Konica

7040

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

....Refer to C-1 in Main Body

1. OPERATION
2. PROCESS
3. MAIN BODY
4. DIAGRAMS
5. ADJUSTMENT
6. SERVICE

Mar. 1999

Ver. 3.0

KONICA CORPORATION

TECHNOLOGY SUPPORT CENTER

TOKYO JAPAN

Model : **Konica 7040/7033**	Date: 25th. Mar 1999 Revision 7040/7033-03
Subject : Revised Pages of SERVICE HANDBOOK	To Service Manager From : S. Inowa S. INOWA General Manager Technology Support Center CS Operations Division, KONICA CORPORATION

According to the machine modifications up to March 1998, we issue the following revised pages of the SERVICE HANDBOOK to be replaced or added.

[Meaning of symbols]
Each symbol which appears on the revised papers indicates the following respectively.

1. △1 △2 Number in △ denotes revised time of the page. And the same number seen in the text does not always denotes revised time of particular description itself, but it denotes in which revision time of the page the particular revision took place.
2. △c Indicates that the revision is just an error correction.

[Note]
Revised edition △2 issue (May 1998) is only for Europe.

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SAFETY AND IMPORTANT WARNING ITEMS

Read carefully the Safety and Important Warning Items described below to understand them before doing service work.

IMPORTANT NOTICE

Because of possible hazards to an inexperienced person servicing this equipment, as well as the risk of damage to the equipment, Konica Corporation, strongly recommends that all servicing be performed only by Konica-trained service technicians.

Changes may have been made to this equipment to improve its performance after this service handbook was printed. Accordingly, Konica Corporation, makes no representations or warranties, either expressed or implied, that the information contained in this service handbook is complete or accurate. It is understood that the user of this service handbook must assume all risks or personal injury and/or damage to the equipment while servicing the equipment for which this service handbook is intended.
Therefore, this Service Handbook must be read carefully before doing service work both in the course of the technical training and even after that, for keeping the correct maintenance and control of the copying machine. Keep the Service Handbook also for the future service. When it is impossible to read the description about safety and warning (due to contamination or tear), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In this Service Handbook, each of three expressions, "⚠ DANGER", "⚠ WARNING" and "⚠ CAUTION" is defined as follows together with a symbol mark to be used in a limited meaning.
When servicing, the relevant works (disassembling, assembling, adjustment, repair and maintenance) need to be conducted with utmost care.

⚠ DANGER:	**Actions having a high possibility of suffering death or serious wound**
⚠ WARNING:	**Actions having a possibility of suffering death or serious wound**
⚠ CAUTION:	**Actions having a possibility of suffering a slight wound, medium trouble and material damage**

SAFETY WARNINGS

[1] MODIFICATIONS NOT AUTHORIZED BY Konica

Konica copiers are renowned for their high reliability. This reliability is achieved through high-quality design and a solid service network.

Photocopier design is a highly complicated and delicate process where numerous mechanical, physical, and electrical aspects have to be taken into consideration, with the aim of arriving at proper tolerances and safety factors. For this reason, unauthorized modifications involve a high risk of degrading performance and safety. Such modifications are therefore strictly prohibited. The points listed below are not exhaustive, but they illustrate the reasoning behind this policy.

⚠PROHIBITED ACTIONS :

(1) **Using extension cables or a different power cord than specified by Konica.**
(2) **Using other fuses than specified by Konica. Safety will not be assured, leading to a risk of fire and injury.**
(3) **Disabling fuses or bridging fuse terminals with wire, metal clips, solder or similar. (This applies also to thermal fuses.)**
(4) **Removing air filters (except for replacement).**
(5) **Disabling relay functions (such as wedging paper between relay contacts, etc.).**
(6) **Disabling safety functions (interlocks, safety circuits, etc.). Safety will not be assured, leading to a risk of fire and injury.**
(7) **Performing actions to copier not described in the instruction manual or the service handbook.**
(8) **Using parts other than specified by Konica.**

[2] CHECKPOINTS WHEN PERFORMING ON-SITE SERVICE

Konica copiers are extensively tested before shipping, to ensure that all applicable safety standards are met, in order to protect the customer and customer engineer from the risk of injury. However, in daily use, any electrical equipment will be subject to parts wear and eventual failure. In order to maintain safety and reliability, the customer engineer must perform regular safety checks.

⚠CAUTION:

(1) **Wear clothing that facilitates work and is designed for safety.**
(2) **Carry out all procedures carefully to prevent injury.**
(3) **Be sure to disconnect the power cord of the copier and all optional equipment from the AC outlet.**
Simply turning off the power switch is not sufficient, because paper feed units or other electrical equipment may be powered also when the power switch is turned off.
(4) **Proceed with special care when performing operation checks or adjustment while the unit is powered. When carrying out operation checks or adjustment while external covers are removed, the risk of electrical shock exists when touching parts which carry high voltage or electrical charge. The risk of injury exists when touching moving parts such as gears or chains.**

The following list is not exhaustive, but it includes actions which must be carried out at every service call.

⚠CAUTION:

(1) **Check external covers and the frame for sharp edges, burrs, or nicks.**
(2) **Check external covers and hinges for loosening or damage.**
(3) **Check wiring for squeezing or damage.**
(4) **Check power cord for insulation problems (conductor must not be exposed).**
(5) **Check power cord and cable ties etc. for loosening from frame.**

⚠WARNING:

(1) **Verify that the copier is properly grounded. If a problem is detected, establish a proper ground connection.**
(2) **Connecting the ground lead to an improper point such as listed below results in a risk of explosion and electric shock.**
Unsuitable ground points:
- **Gas pipe**
- **Lightning rod**
- **Telephone line ground**
- **Plastic water pipe or water pipe or faucet that has not been approved by authorities for grounding use**

[3] PRECAUTIONS FOR ON-SITE SERVICE

⚠CAUTION:

1. **(1) Before performing maintenance work, read all relevant documentation (service handbook, technical notices, etc.) and proceed according to the prescribed procedure, using only the prescribed tools. Do not carry out any adjustments not described in the documentation.**
2. **(2) If the power cord is damaged, replace it only with the specified power cord. If the power cord insulation has been damaged and there are exposed sections, short-circuits and overheating may occur, leading to a serious fire risk.**
3. **(3) Do not route the power cord so that it can be stepped on or pinched. Otherwise overheating may occur, leading to a serious fire risk.**
4. **(4) When disconnecting any cables, always grasp the connector and not the cable (especially in the case of AC and high-voltage leads).**
5. **(5) Carefully remove all toner remnants from electrical parts, electrodes, etc.**
6. **(6) Make sure that wiring cannot come into contact with sharp edges, burrs, or other pointed parts.**
7. **(7) Double-check to make sure that all screws, components, wiring, connectors, etc. that were removed for maintenance have been reinstalled in the original location. (Pay special attention to forgotten connectors, pinched cables, forgotten screws, etc.)**
8. **(8) When installation and preventive maintenance, verify that the power cord has been securely plugged into the AC outlet. Contact problems may lead to increased resistance, overheating, and the risk of fire.**

⚠WARNING:

- **(1) Before disassembling or adjusting the optical unit or any parts that use a laser, make sure that the power cord has been disconnected.**
- **(2) Do not remove the main cover of the write unit. Direct exposure of the eye to laser beams may lead to blindness.**
- **(3) Do not turn the copier on while the write unit is not installed in its normal position.**
- **(4) Danger of explosion if battery is incorrectly replaced, replace only with the same or equivalent recommended by the manufacturer. Discard used batteries according to the manufacture's instructions.**

⚠VORSICHT:

- **(4) Expiosionsgefahr dei unsachegemäßem Austausch der Battetie. Ersatz nur durch denselben oder einen vom. Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.**

[4] HANDLING OF MATERIALS FOR SERVICING

⚠CAUTION: **Drum cleaner (alcohol-based) and roller cleaner (acetone- based) are highly flammable and must be handled with care. When using these materials for cleaning of copier parts, observe the following precautions.**

- **(1) Disconnect the power cord from the AC outlet.**
- **(2) Use only a small amount of cleaner at a time and take care not to spill any liquid. If this happens, immediately wipe it off.**
- **(3) Perform cleaning only in an environment where sufficient ventilation is assured. Breathing large quantities of organic solvents can lead to discomfort.**
- **(4) Do not replace the cover or turn the unit on before any solvent remnants on the cleaned parts have fully evaporated.**

⚠CAUTION: **Toner and developer are not harmful substances, but care must be taken not to breathe excessive amounts or let the substances come into contact with eyes etc. If this happens, immediately rinse with eye wash and plenty of water, and consult a physician.**

[5] MEASURES TO TAKE IN CASE OF AN ACCIDENT

- (1) If an accident has occurred, the distributor who has been notified first must immediately take emergency measures to provide relief to affected persons and to prevent further damage.
- (2) If a report of a serious accident has been received from a customer, an on-site evaluation must be carried out quickly and Konica Corporation must be notified.
- (3) To determine the cause of the accident, conditions and materials must be recorded through direct on-site checks, in accordance with instructions issued by Konica Corporation.

[6] CONCLUSION

Safety of users and customer engineers has topmost priority, ranking even higher than operability. Safety depends on a appropriate maintenance work and is maintained by proper daily service work conducted by customer engineers. When performing service, each copier on the site must be tested for safety. The customer engineer must verify the safety of parts and ensure appropriate management of the equipment.

SAFETY INFORMATION

IMPORTANT INFORMATION

The Center for Devices and Radiological Health (CDRH) of the U.S. Food and Drug Administration implemented regulations for laser products manufactured since August 1, 1976. Compliance is mandatory for products marketed in the United States.

This copier is certified as a "Class 1" laser product under the U.S.
Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. Since radiation emitted inside this copier is completely confined within protective housings and external covers, the laser beam cannot escape during any phase of normal user operation.

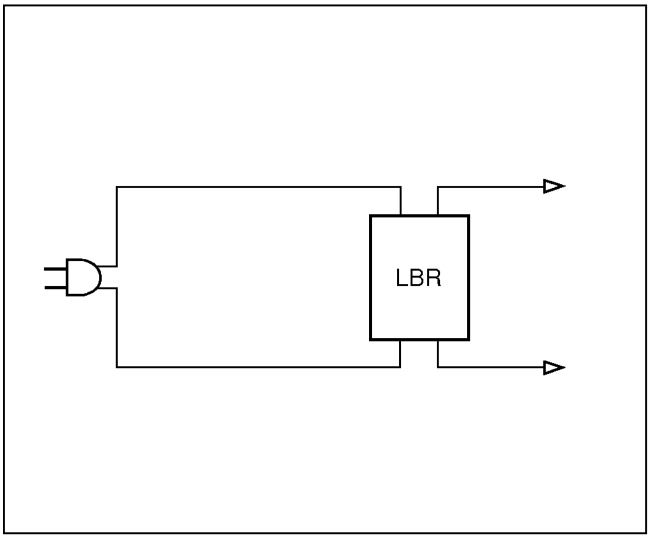
SAFETY CIRCUITS

This unit incorporates the following electrical safety circuits to guard against the risk of accidents in case of any malfunction.

[1] Overall protection circuit
[2] L2/L3 (fixer heater lamps) overheat protection circuit

Operation principles of these safety circuits are described below. It is necessary to understand this information fully, in order to prevent mistakes during servicing.

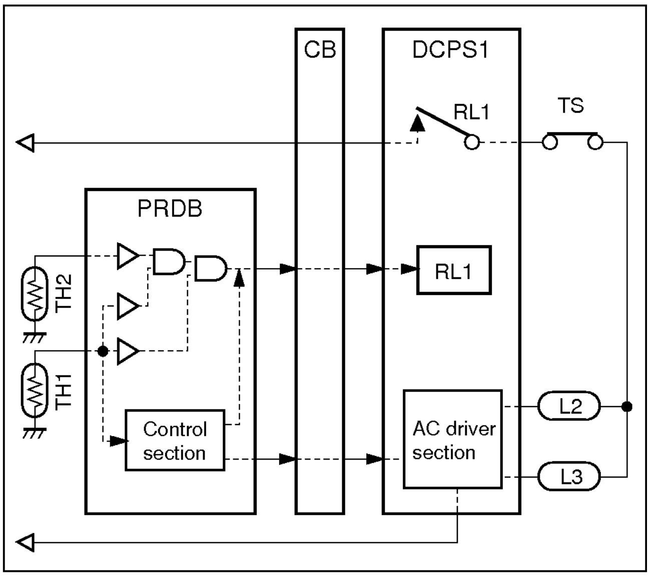
[1] Overall protection circuit



1. **LBR (line breaker) protection**
   When an excessively large current flows due to a short-circuit in the AC line, the AC line itself is instantly cut off due to the action of this circuit breaker.

⚠**CAUTION: The line breaker must not be disabled under any circumstances.**

[2] L2/L3 (fixer heater lamps) overheat protection circuit



1. **Software protection**
   The output voltage of TH1 (fixer temperature sensor 1) is constantly read by the CPU. If the voltage becomes abnormal, L2 (fixer heater lamp 1), L3 (fixer heater lamp 2), and RL1 (main relay) are set to OFF.

⚠**CAUTION: The clearance between the roller and TH1 may not be altered.**
After replacement, verify that dimensions correspond to specifications.
RL1 may not be disabled under any circumstances.

2. **Hardware protection**
   The output voltages of TH1 and TH2 (fixer temperature sensors) are compared to a reference voltage in the comparator circuit. If the voltage exceeds the threshold, L2, L3, and RL1 are set to OFF in hardware.

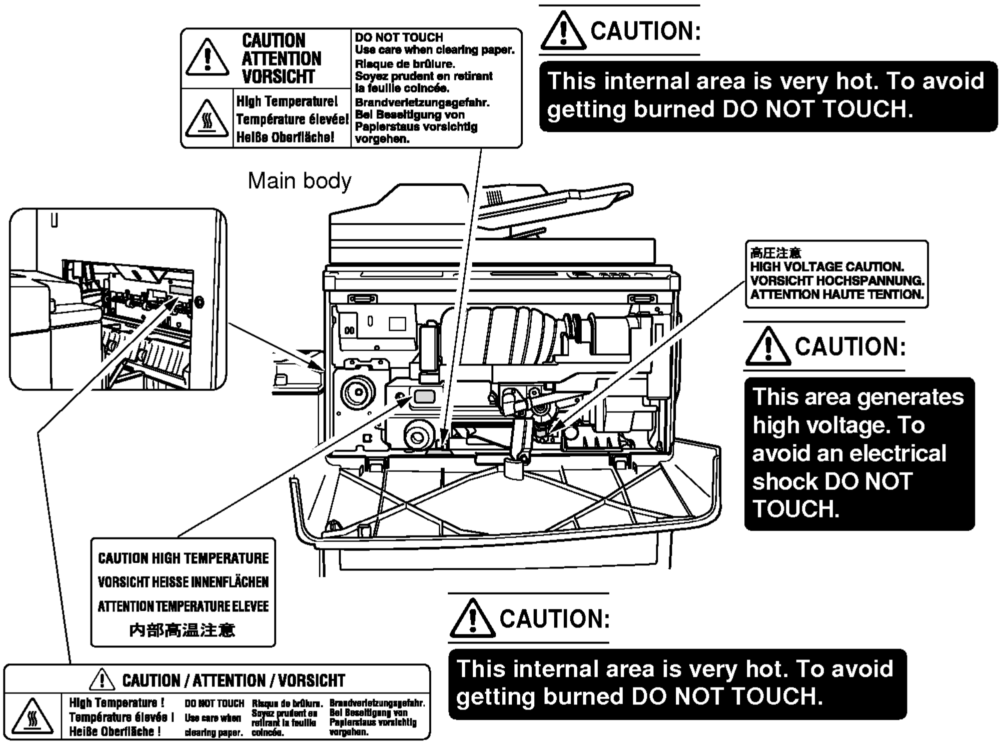
⚠**CAUTION: Periodically check the roller contact area of TH2 and replace the sensor if any problem is detected.**
Since the TH1 is non-contact, check the distance from the roller and installing orientation of the sensor when an abnormality has occurred.
RL1 may not be disabled under any circumstances.

3. **TS (thermostat) protection**
   If the fixer roller temperature exceeds the threshold, TS goes OFF and directly cuts power to L2 and L3.

⚠**CAUTION: TS may not be replaced by any other conductor.**
Do not change the distance between the TS and roller.

INDICATION OF WARNING ON THE MACHINE

The caution labels are attached to the machine areas, as shown below, where you are advised to pay special attention to avoid any dangerous situations or serious injury.


CAUTION
ATTENTION
VORSICHT
DO NOT TOUCH
Use care when clearing paper.
Risque de brûlure.
Soyez prudent en retirant la feuille coincée.
High Temperature!
Température élevée!
Heiße Oberfläche!
Brandverletzungsgefahr.
Bei Beseitigung von Papierstaus vorsichtig vorgehen.
Main body
高圧注意
HIGH VOLTAGE CAUTION.
VORSICHT HOCHSPANNUNG.
ATTENTION HAUTE TENTION.
CAUTION HIGH TEMPERATURE
VORSICHT HEISSE INNENFLÄCHEN
ATTENTION TEMPERATURE ELEVEE
内部高温注意
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⚠ **CAUTION:**

This internal area is very hot. To avoid getting burned DO NOT TOUCH.

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This area generates high voltage. To avoid an electrical shock DO NOT TOUCH.

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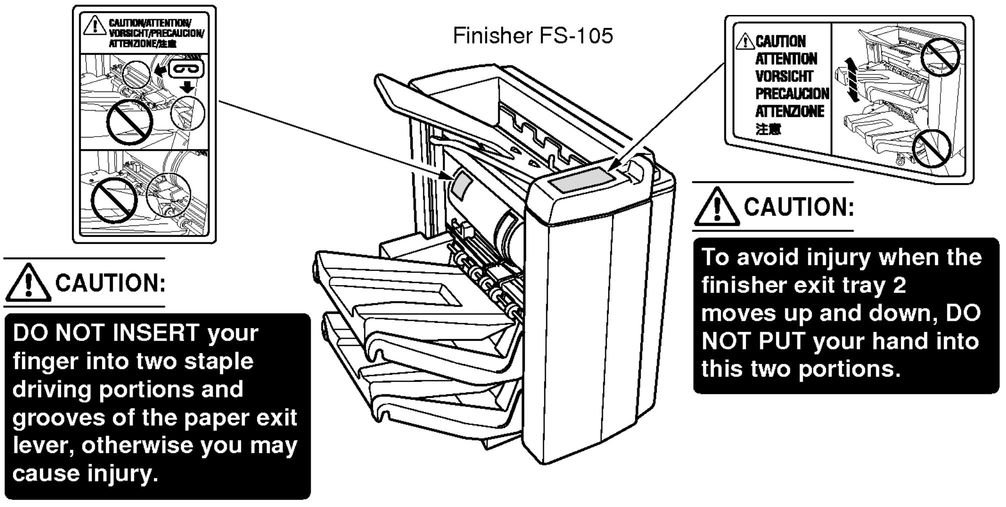
CAUTION/ATTENTION/
VORSICHT/PRECAUCION/
ATTENZIONE/注意
Finisher FS-105
CAUTION
ATTENTION
VORSICHT
PRECAUCION
ATTENZIONE
注意

⚠ **CAUTION:**

DO NOT INSERT your finger into two staple driving portions and grooves of the paper exit lever, otherwise you may cause injury.

⚠ **CAUTION:**

To avoid injury when the finisher exit tray 2 moves up and down, DO NOT PUT your hand into this two portions.

⚠**CAUTION:**

You may be burned or injured if you touch any area that you are advised by any caution label to keep yourself away from.
Do not remove caution labels. If any caution label or caution indicator is soiled, clean the label. If you cannot make it legible or if the caution label is removed, please contact your Service Centre.

SAFETY CIRCUITS

This unit incorporates the following electrical safety circuits to guard against the risk of accidents in case of any malfunction.

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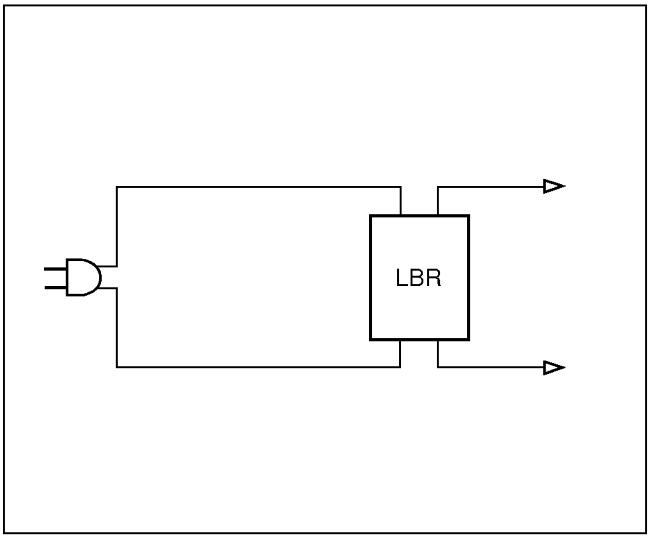

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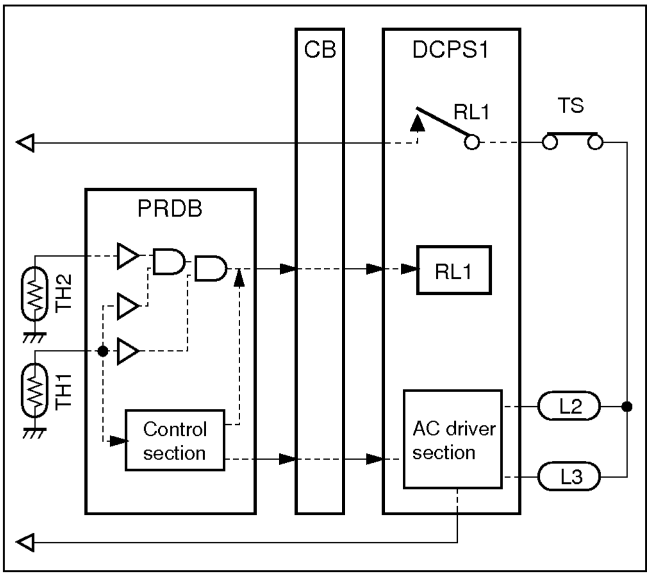

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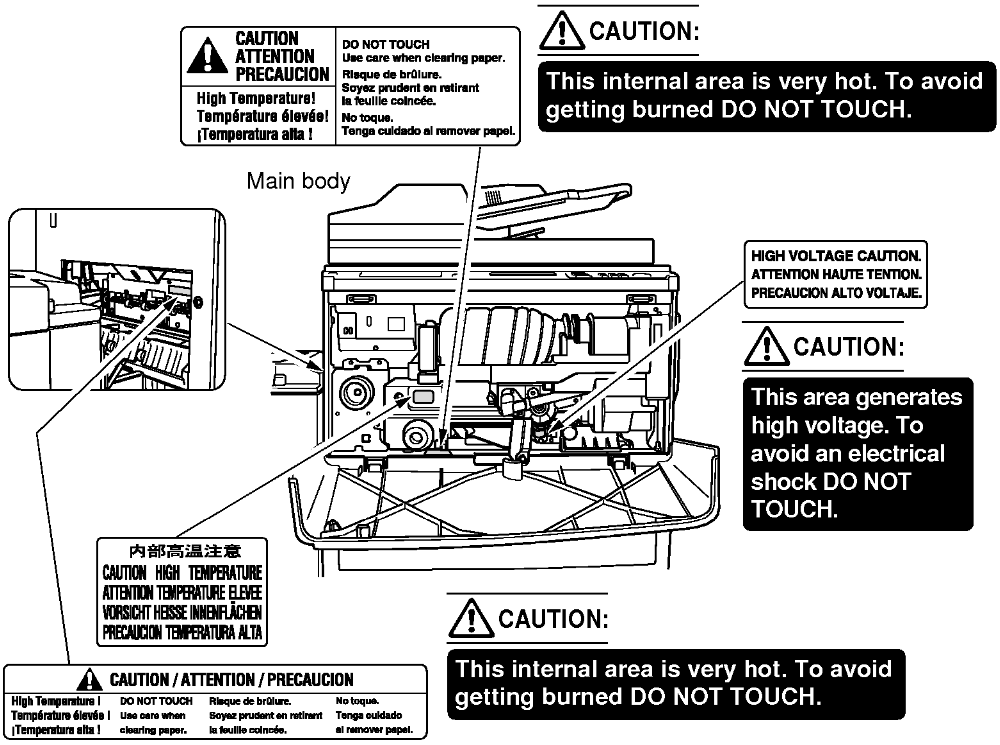
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PRECAUCION
High Temperature!
Température élevée!
¡Temperatura alta !
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Use care when clearing paper.
Risque de brûlure.
Soyez prudent en retirant la feuille coincée.
No toque.
Tenga cuidado al remover papel.
Main body
HIGH VOLTAGE CAUTION.
ATTENTION HAUTE TENTION.
PRECAUCION ALTO VOLTAJE.
内部高温注意
CAUTION HIGH TEMPERATURE
ATTENTION TEMPERATURE ELEVEE
VORSICHT HEISSE INNENFLÄCHEN
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CAUTION / ATTENTION / PRECAUCION
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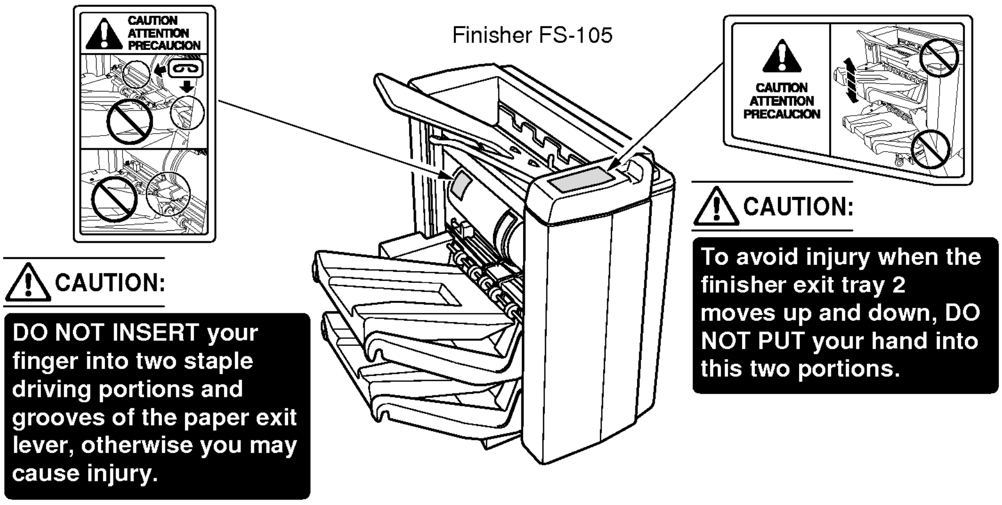
CAUTION
ATTENTION
PRECAUCION
Finisher FS-105
CAUTION
ATTENTION
PRECAUCION

⚠ **CAUTION:**

DO NOT INSERT your finger into two staple driving portions and grooves of the paper exit lever, otherwise you may cause injury.

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This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the componet was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

1

OPERATION

1. OPERATION

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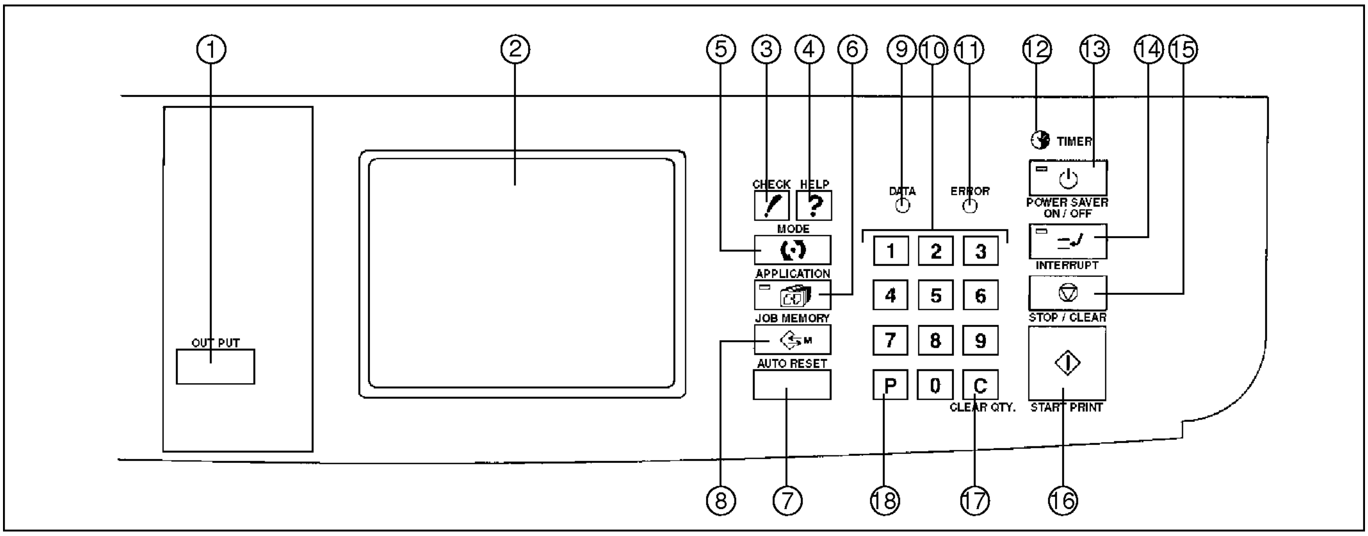
OPERATION PANEL



No.	Name	Function
①	OUT PUT button	Used to select the output mode (staple mode, group mode, sort mode, face up mode).
②	LCD screen	Displays the screens that are necessary for operations such as setting, selection, etc. Each screen consists of a touch panel. The displayed keys are operated by pressing them directly.
③	CHECK button	Pressing the check button activates the check screen that displays the settings for each selected copy mode.
④	HELP button	Pressing the help button displays an explanation of operation for the currently displayed screen.
⑤	MODE button	Used to select the Copy mode/Printer mode/Facsimile mode.
⑥	APPLICATION button	Pressing the application button activates the selection screen, enabling various application functions to be selected. (the LED in the button lights.)
⑦	AUTO RESET button	Used to cancel settings and return the copier to the initial settings.
⑧	JOB MEMORY button	Pressing the job memory button activates the job memory setting screen, enabling data to be written to, or read from the memory.
⑨	DATA lamp	Indicates a printer or ISW data reception condition.
⑩	Copy quantity setting buttons	Used to set copy quantity.
⑪	ERROR lamp	Indicates that an error has occurred.
⑫	TIMER lamp	Indicates that the weekly timer is being used.
⑬	POWER SAVER ON/OFF button	Used to select the power save mode. (the LED in the button lights.)
⑭	INTERRUPT button	Used to activate the interrupt mode. (the LED in the button blinks or lights.)
⑮	STOP/CLEAR button	Used to stop a copy operation or cancel the set copy quantity (contents of the memory are cleared).
⑯	START PRINT button	Used to start the copy process.
⑰	C button	Used to cancel the set copy quantity. (The contents of the memory are not cleared.)
⑱	P button	Used to read various settings and counts.

[1] LCD screen

This machine has a large LCD screen which displays the necessary screens for performing a copy operation or selecting various functions.

At the top of the LCD screen is a message display area which is used to display messages and information necessary for the particular screen.

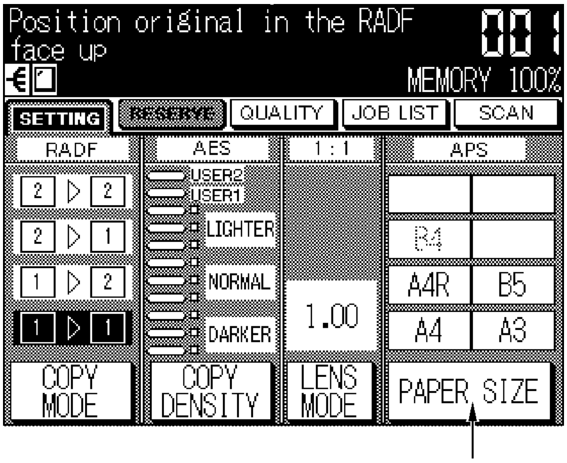
The LCD screen is a touch panel. Functions can be selected by directly pressing the key corresponding to that function with a finger.

Caution:

1. Do not drop anything onto the LCD screen or exert excessive pressure on it as this may cause the LCD screen to break.
2. Do not press multiple keys simultaneously, otherwise, an undesired function may be selected.

Example: Basic screen (Menu selection)

Message display area



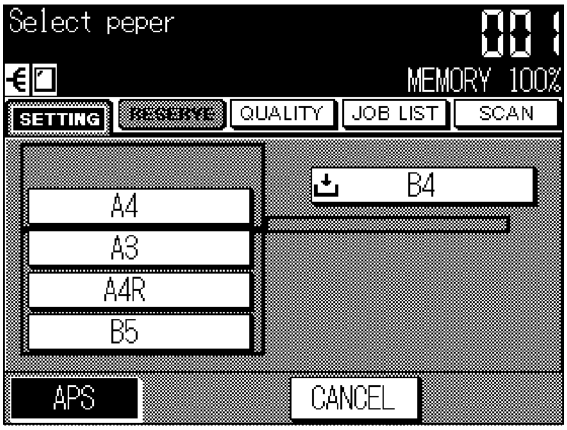
Position original in the RADF face up

MEMORY 100%

00 1
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
RADF
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
AES
USER2
USER1
LIGHTER
NORMAL
DARKER
1 : 1
1.00
APS
B4
A4R
B5
A4
A3
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

Press the [PAPER SIZE] key directly with a finger.

The screen changes over



Select peper

MEMORY 100%

00 1
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
A4
A3
A4R
B5
B4
APS
CANCEL

In this way, the copier is operated according to the display on the LCD screen.

1. Basic Operations

a. Function keys are shown with round corners and a shadow. To make a setting, press the corresponding function key.

b. When a key is selected, it is displayed in reverse (with black and white reversed).
If the reverse-displayed key is pressed once again, the selection is cleared.

c. Keys or indications that cannot be selected are displayed shaded.

d. You can also set the memory switch so that when a key is pressed, a short beep is emitted.

e. The OK key can be displayed on the following screens by setting the 25 mode DIP SW. In this case, when the OK key is pressed, the settings are finalized, and the basic screen re-appears.
- Tray selection screen
- Magnification selection screen
- Copy density selection screen
- Copy mode selection screen

2. Wake-up Screen

When the power switch is turned ON, the wake-up screen appears for approximately 4 seconds and then switches to the basic screen.

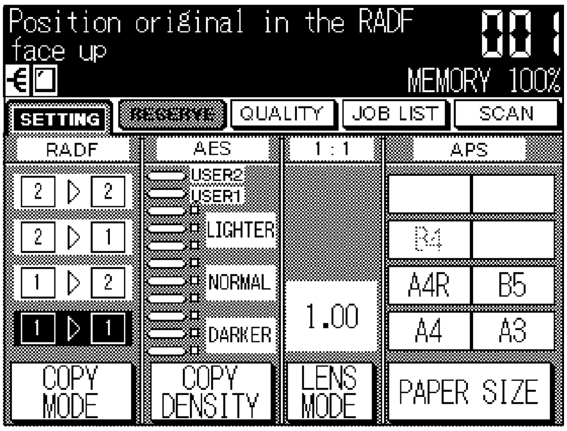
[Wake-up Screen]

3. Initial Screen (basic screen)

This screen appears when the copier goes into the ready state upon completion of wake-up or when an auto reset operation takes place.

Also, when the AUTO RESET button is pressed, the settings are returned to the initial values and this screen appears.

△3 **[Basic Screen (Menu select)]**



Position original in the RADF face up

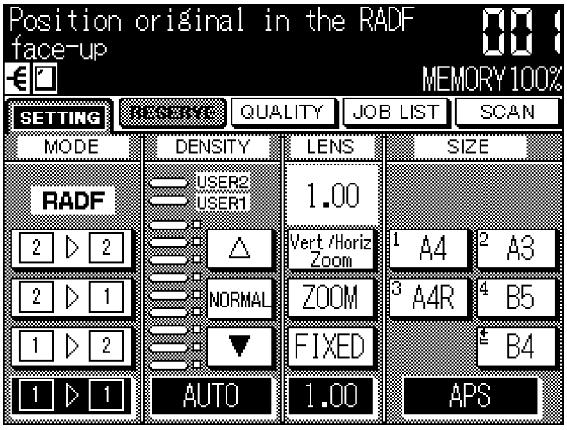
MEMORY 100%

00
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
RADF
AES
1 : 1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
B4
A4R
B5
A4
A3
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

△3 Unlike Menu select, paper size, magnification, and copy mode selection operations are done on the same screen however, they are Direct select.

The contents for the settings are identical to Menu select.

[Basic Screen (Direct select)]



Position original in the RADF face-up

MEMORY 100%

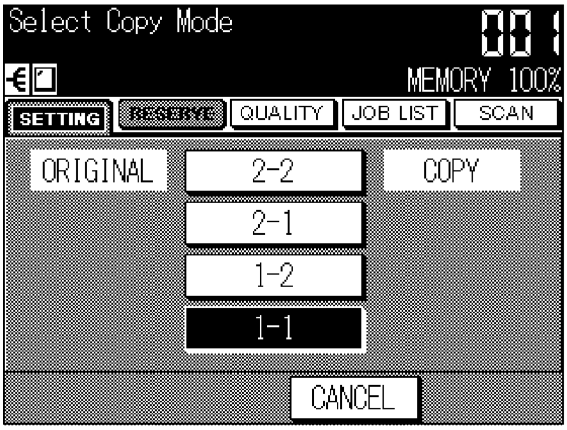
00
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
MODE
DENSITY
LENS
SIZE
RADF
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
△
NORMAL
▼
AUTO
1.00
Vert /Horiz Zoom
ZOOM
FIXED
1.00
1 A4
2 A3
3 A4R
4 B5
B4
APS

COPY OPERATION

[1] Copy Mode

With the basic screen or full auto screen displayed, press the COPY MODE key. When the copy mode is selected, the basic screen re-appears. If the START PRINT button is pressed while the copy mode screen is displayed, the basic screen will re-appear, and a copy operation will start automatically.

[Copy Mode selection screen]



Select Copy Mode

001
MEMORY 100%
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
ORIGINAL
COPY
2-2
2-1
1-2
1-1
CANCEL

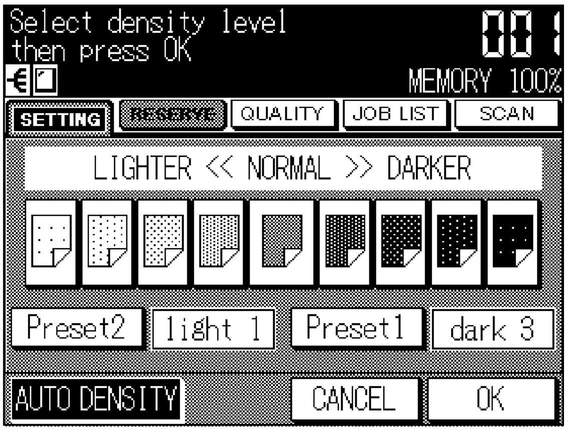
[Limiting conditions]

- The copy modes that can be used differ depending upon the selected application functions.
- For details of copy modes that can be used, refer to the sub-section concerning each application function.
- If the Copy Mode selection screen is selected after an application function is selected, the copy modes that can be used can be identified according to whether or not they are displayed in a shaded condition.

[2] Copy Density

Press the COPY DENSITY key on the basic screen or full auto screen. When a copy density is selected, the basic screen re-appears. If the START PRINT button is pressed while the copy density selection screen is displayed, the basic screen re-appears, and a copy operation starts automatically.

[Copy Density selection screen]



Select density level
then press OK

001
MEMORY 100%
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
LIGHTER << NORMAL >> DARKER
Preset2
light 1
Preset1
dark 3
AUTO DENSITY
CANCEL
OK

- If the Preset1 or Preset2 key is pressed, the density registered using arbitrary density setting screen can be selected.
- Pressing the AUTO DENSITY key activates the automatic density mode.
- This screen can be displayed and the density adjusted, even while copying is taking place. However, the AUTO DENSITY key does not function in this case.

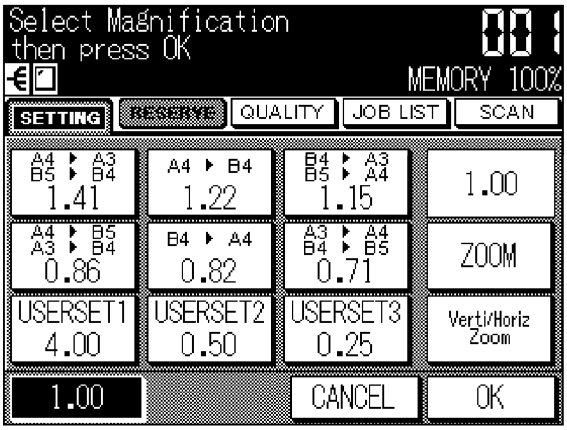
[3] Magnification Selection

Press the LENS MODE key on the basic screen or the full auto screen, and select the desired magnification. When a magnification is selected, the basic screen re-appears.

If the START PRINT button is pressed while this screen is displayed, the basic screen will re-appear, and copying will start automatically.

There are three magnification selection screens, a Fixed magnification selection screen, a Zoom magnification setting screen, and a Vertical/Horizontal magnification zoom setting screen.

[Fixed magnification selection screen]



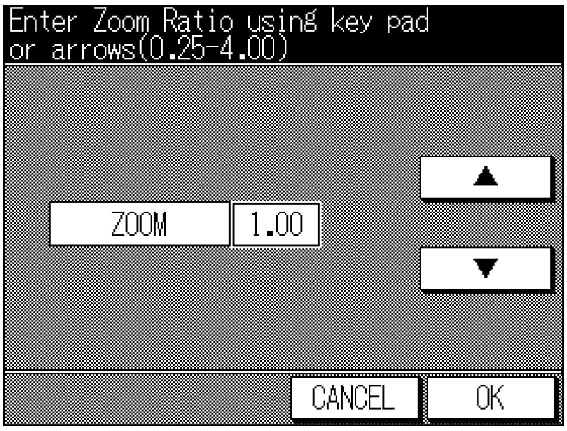
Select Magnification
then press OK

MEMORY 100%

00
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
A4 ▸ A3 B5 ▸ B4 1.41
A4 ▸ B4 1.22
B4 ▸ A3 B5 ▸ A4 1.15
1.00
A4 ▸ B5 A3 ▸ B4 0.86
B4 ▸ A4 0.82
A3 ▸ A4 B4 ▸ B5 0.71
ZOOM
USERSET1 4.00
USERSET2 0.50
USERSET3 0.25
Verti/Horiz Zoom
1.00
CANCEL
OK

- Switch to the zoom magnification setting screen by pressing the ZOOM key.
- To select a magnification of 1.00, press the 1.00 key on the screen.

[Zoom magnification setting screen]



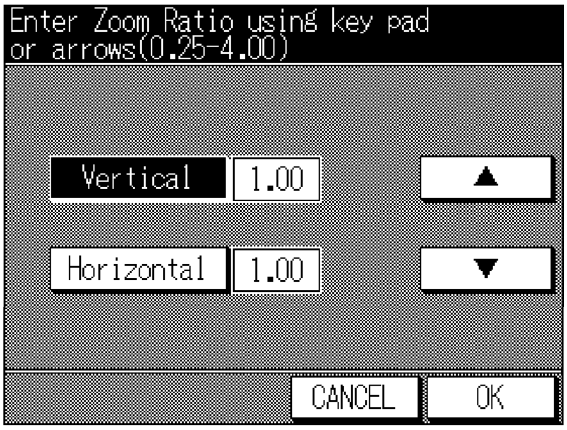
Enter Zoom Ratio using key pad
or arrows(0.25-4.00)

▲
ZOOM
1.00
▼
CANCEL
OK

- Select the desired magnification using the ▲ or ▼ key on the screen. (Setting range: Normally 5 0.25 to 5 4.00; In the S-fine mode 5 0.5 to 5 4.00)

- If the Verti/Horiz Zoom key is pressed, the screen switches over to the Vertical/Horizontal magnification zoom setting screen.
- By pressing either the [Vertical] or [Horizontal] key, magnification individually for vertical and horizontal zoom ratios can be selected.

[Vertical/Horizontal zoom magnification setting screen]



Enter Zoom Ratio using key pad
or arrows(0.25-4.00)

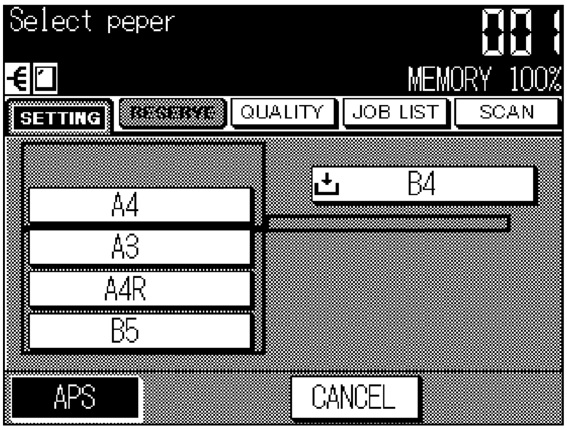
Vertical
1.00
▲
Horizontal
1.00
▼
CANCEL
OK

- Select the desired magnification by using the ▲ and ▼ key on the screen. (Setting range: Normally X 0.25 to X 4.00; In the S-fine mode X 0.5 to X 4.00)

[4] Tray selection screen

Press the PAPER SIZE key on the basic screen or full auto screen, and then select the paper feed tray to be used. When a paper feed tray is selected, the basic screen re-appears. If the START PRINT button is pressed while the tray selection screen is displayed, the basic screen will re-appear, and copying will start automatically.

[Tray selection screen]



Select peper

00
MEMORY 100%
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
A4
A3
A4R
B5
B4
APS
CANCEL

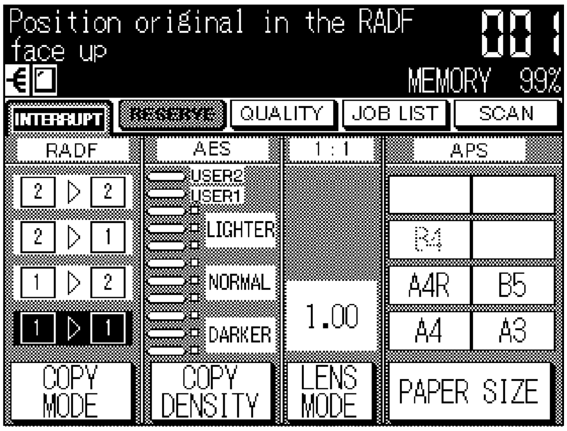
- Paper size and paper type are displayed on the tray keys. The following paper types can be displayed in the key operator mode.
  - Recycled paper
  - Colored paper
  - Thick paper
  - OHP film
  - Plain paper
  - Special paper
  - High-quality paper
- The ⤓ symbol appears on the key corresponding to a tray that has no paper. When a tray that has no paper is selected, the symbol blinks.
- When the APS key is pressed, the auto size mode is activated.

[5] Interrupt Copy

This function enables a copy condition setting or a continuous copy operation to be interrupted, and a copy made under different set conditions.

If you press the INTERRUPT button when the machine is in an “interrupt enable” status, the interrupt copy screen appears.

[Interrupt Copy screen]



Position original in the RADF face up

00
MEMORY 99%
INTERRUPT
RESERVE
QUALITY
JOB LIST
SCAN
RADF
AES
1 : 1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
B4
A4R
B5
A4
A3
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

- When the Interrupt mode is selected, the LED in the button blinks.
- Density, magnification, and paper size settings can be set in the Interrupt mode.
- If the INTERRUPT button is pressed when the interrupt copy screen is displayed while the machine is idling, the Interrupt mode will be canceled.

When the INTERRUPT button is pressed again after an interrupt copy has been completed, the previous conditions are restored.

[Limiting conditions]

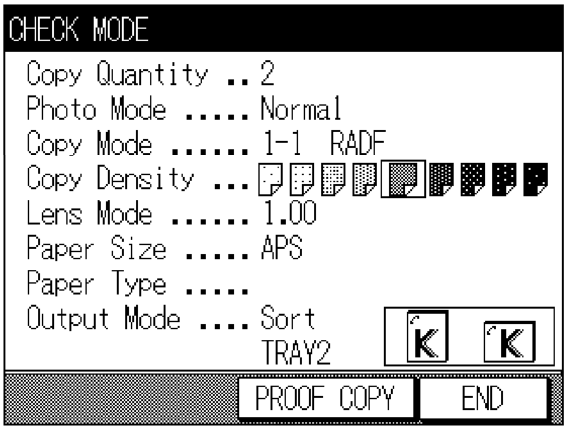
a. An interrupt copy can only be made using the basic.
b. A reservation copy cannot be made in the interrupt mode.
c. An interrupt copy cannot be made in the S-fine mode, when an error has occurred, or in the Interrupt mode.
d. While the Interrupt mode is activated, the Auto low power and Auto shut off functions do not operate.

[6] Check Mode

This mode consists of a function that displays the settings of the various functions as a list, and also a function that makes one copy of each original for checking purposes.

Pressing the CHECK button causes the check mode screen to appear.

[Check mode screen]

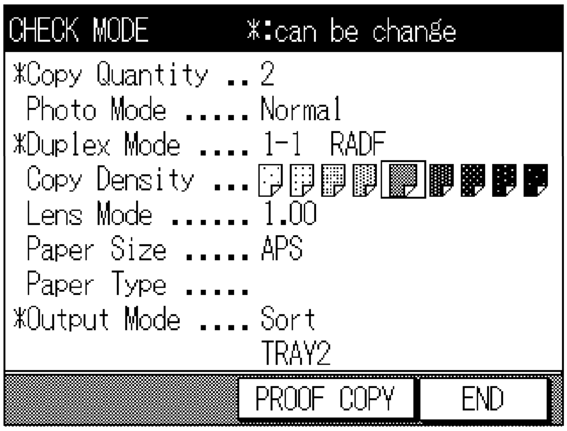


CHECK MODE
Copy Quantity .. 2
Photo Mode ..... Normal
Copy Mode ...... 1-1 RADF
Copy Density ...
Lens Mode 1.00
Paper Size ..... APS
Paper Type .....
Output Mode .... Sort
TRAY2

- If the Sheet insertion mode is selected, the front cover will be displayed as "F" and the back cover as "B". Also, the number of blank sheets to be inserted will be displayed with a frame around it.

If the PROOF COPY key is pressed, the basic screen will re-appear momentarily, and a test copy will be produced.

- When the test copy is completed, the items whose settings can be changed are marked with the symbol * in the check mode screen.



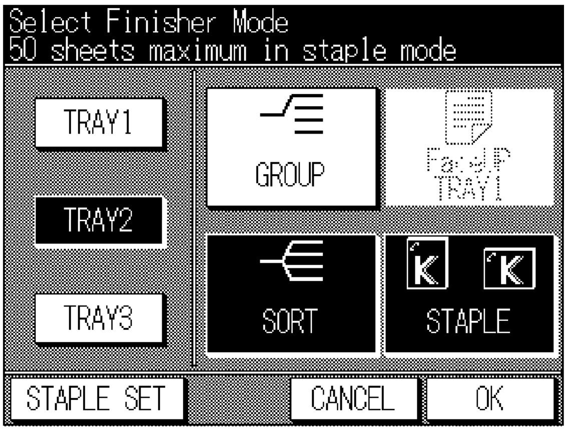
CHECK MODE *:can be change
*Copy Quantity .. 2
Photo Mode ..... Normal
*Duplex Mode .... 1-1 RADF
Copy Density ...
Lens Mode 1.00
Paper Size ..... APS
Paper Type .....
*Output Mode .... Sort
TRAY2

Check the set items, and then either press the END key or press the CHECK button once again to display the previous screen.

[7] Finishing Function

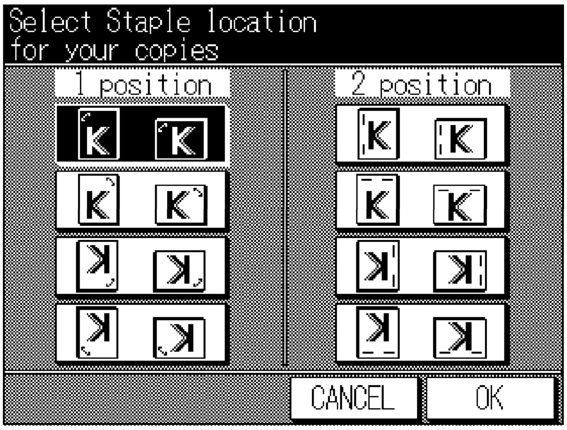
Used to set the finishing and stapling requirement. If the OUT PUT button is pressed when the basic screen is displayed, the Finisher mode setting screen will be displayed.

[Finisher mode setting screen]



Select Finisher Mode
50 sheets maximum in staple mode

- Pressing STAPLE SET key causes the Staple setting screen to appear.



Select Staple location
for your copies

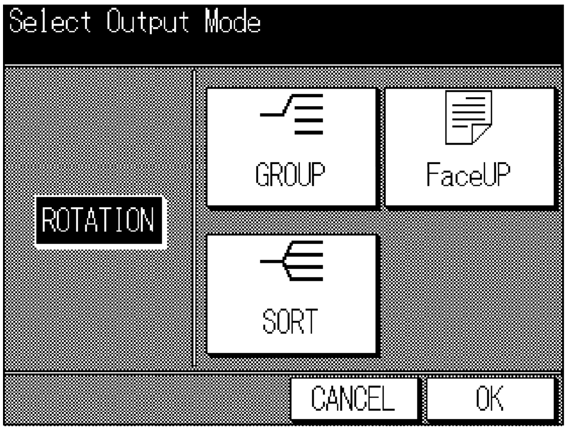
- Press the corresponding key to select 1-position stapling or 2-position stapling and the position to be stapled.
- If 2-position stapling can not be inserted due to a paper size, 1-position stapling will take place automatically.
- The face up mode can be set only when selecting "Tray 1".

[Display screen if finisher is not installed]

Rotation (Alternate output) can be selected.

The vertical and horizontal feeding is output alternately and perform the sort and grouping.

[Finisher mode screen (Finisher not installed)]


Select Output Mode
ROTATION
GROUP
FaceUP
SORT
CANCEL
OK

Caution:

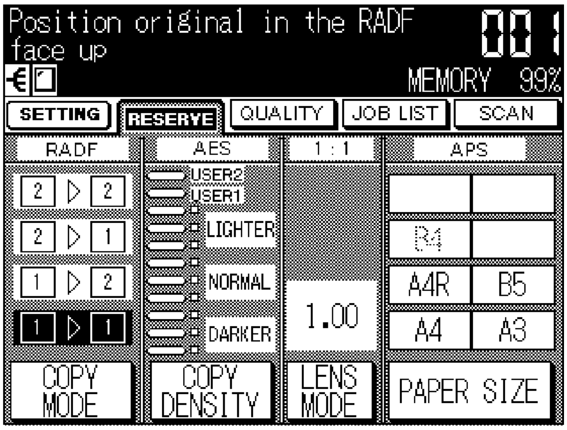
1. Paper can be only used with A4 and A4R, or B5 and B5R.
2. When placing an original on the original glass to copy, the sort mode can not be used.
3. You cannot select the following modes simultaneously with the rotation.
   - S-fine mode
   - Booklet mode
   - OHP Inter leave mode
   - Repeat mode

[8] Copy Reservation

By selecting the RESERVE key, different copy conditions can be set, even while a copy operation or an image read operation is taking place.

- If the machine is not in a read state, image read can be started according to the set copy reservation, even if a copy output is taking place.
- The copy reservation can be set up to maxim. 5 job including job during operation. However, the S-fine mode can not be reserved.
- Upon completion of the ongoing copy output (the ongoing job), the next copy output (the next job) takes place according to the set copy reservation.
- The items that can be set when the RESERVE key has been selected are the same as the items that can normally be set.
- If a copy reservation cannot be made, the RESERVE key will be displayed shaded. An example is when the copier is idling.

[Basic screen/Copy Reservation screen]



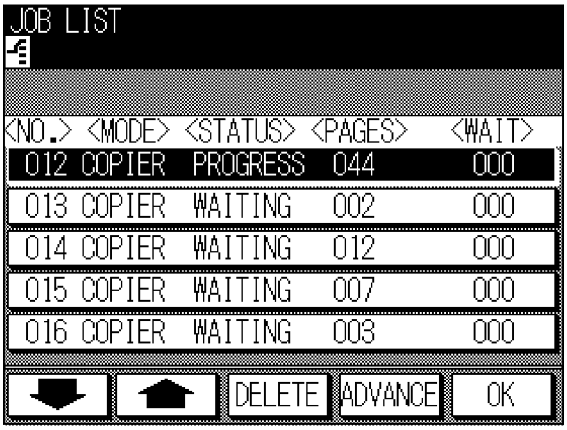
Position original in the RADF face up

MEMORY 99%

SETTING
RESERVE
QUALITY
JOB LIST
SCAN
RADF
AES
1 : 1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
B4
A4R
B5
A4
A3
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

1. Changing method of the copy job advance

[Reservation list display screen]


JOB LIST

<NO.>	<MODE>	<STATUS>	<PAGES>	<WAIT>
012	COPIER	PROGRESS	044	000
013	COPIER	WAITING	002	000
014	COPIER	WAITING	012	000
015	COPIER	WAITING	007	000
016	COPIER	WAITING	003	000

DELETE
ADVANCE
OK

(1) Press the JOB LIST key.
Reservation list display screen will appear.
(2) Press the ⬆ or ⬇ key to select the copy job.
(3) Press the ADVANCE key. The selected copy job is shifted to the top of the output waiting job.
(4) When changing the advance of the other copy job, repeat step 2 and 3.
(5) Press the OK key to return to the basic screen.

2. Deleting method of a copy job

(1) Press the JOB LIST key.
Reservation list display screen will appear.
(2) Press the ⬆ or ⬇ key to select the copy job.
(3) Press the DELETE key. The copy job clear checking screen will appear. After pressing the Yes key, pressing the OK deletes the selected copy job from the job list.
(4) When changing the advance of the other copy job, repeat step 2 and 3.
(5) Press the OK key to return to the basic screen.

[Limiting conditions]

a. A copy reservation is not accepted if either the ongoing job contains one of the following settings.
  - While the scanner is operating (including operation in the S-fine mode)
  - Interrupt mode
  - Booklet mode
  - Image insert mode
  - Mixed original APS mode
  - Rotation
  - Proof copy
  - Memory copy mode

b. The following settings cannot be made for a copy reservation.
  - S-fine mode
  - Proof copy

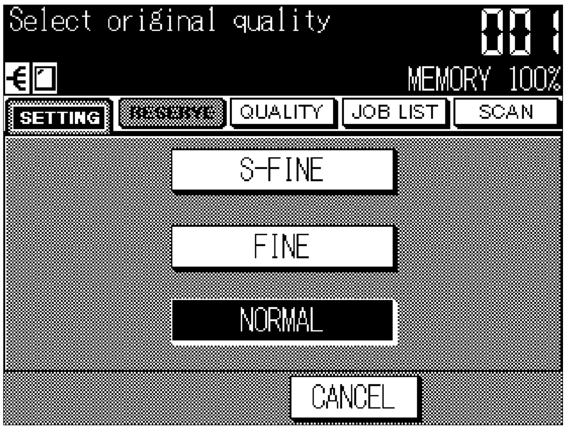
c. You cannot start a copy reservation until the completion of the image read operation for the ongoing job.
Also, you cannot select a copy reservation until the reading for the ongoing job has been completed.

d. All button operations (including STOP/CLEAR button) performed either while or immediately after the copy reservation screen was displayed, and also the Output setting screen are valid for a copy reservation (this also applies to messages). Likewise, button operations performed during or immediately after the copy setting screen was displayed are valid for the copy setting screen.

[9] Image quality setting mode

Press the QUALITY key on the basic screen or full auto screen.
When the Image quality setting mode is selected, the basic screen re-appears.

[Image quality setting screen]



Select original quality

MEMORY 100%

[Limiting conditions]

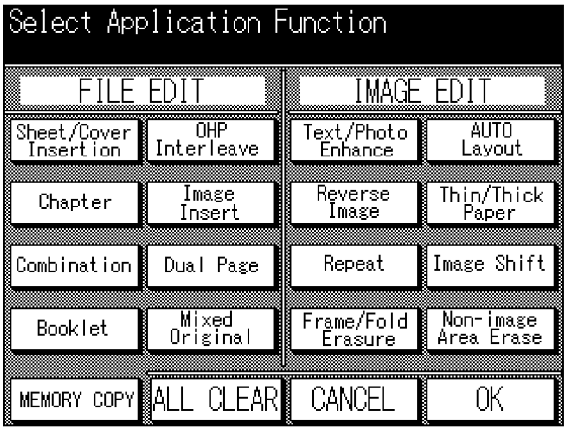
- The copy image quality that can be used differ depending upon the selected application.
- For details of copy image quality that can be used, refer to the sub-section concerning each application function.
- If the Image quality setting screen is selected after an application function is selected, the copy modes that can be used can be identified according to whether or not they are displayed shaded.

APPLICATION FUNCTION

Application functions are special functions such as sheet insertion, reduction shift, and frame erasure that can be set.

[1] Setting Method

1. Press the APPLICATION button. The application function selection screen appears on the LCD screen.
   [Application function selection screen]


Select Application Function
FILE EDIT
IMAGE EDIT
Sheet/Cover Insertion
OHP Interleave
Text/Photo Enhance
AUTO Layout
Chapter
Image Insert
Reverse Image
Thin/Thick Paper
Combination
Dual Page
Repeat
Image Shift
Booklet
Mixed Original
Frame/Fold Erasure
Non-image Area Erase
MEMORY COPY
ALL CLEAR
CANCEL
OK

2. Select the key corresponding to the application function mode that you wish to use.
   In the application function mode, some of the applications selected will display a setting screen of the details and some will not.

a. Modes which display a setting screen
   When one of the following modes is selected, the setting screen of that mode will be displayed.
   - Sheet/Cover insertion mode
   - Chapter mode
   - Combination mode
   - OHP Inter leave mode
   - Image Insert mode
   - Dual Page mode
   - Text/Photo Enhance mode
   - Repeat mode
   - Frame/Fold Erasure mode
   - Thin/Thick Paper mode
   - Image Shift mode

   (1) Make the necessary settings using the respective setting screens.
   To cancel settings using this screen, press the CANCEL key. The original settings are re-activated, and the application function selection screen re-appears.
   (2) To finalize the settings, press the OK key, and the application function selection screen re-appears.

b. Modes which have no setting screen
   When a one of the following modes are selected, the selected button is displayed in reverse and the application function selection screen remains displayed.
   - Booklet mode
   - Mixed Original mode
   - Reverse Image mode
   - AUTO Layout mode
   - Non-image Area Erase mode

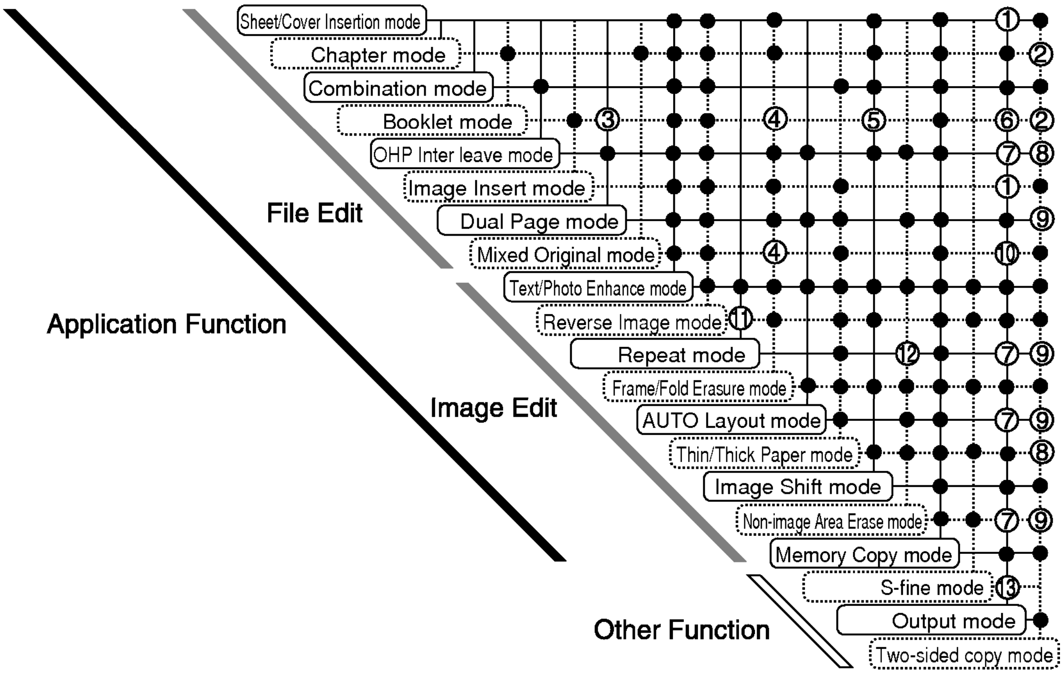
   To cancel the selected mode, either select the reverse-displayed key once again, or press the CANCEL, ALL CLEAR key or AUTO RESET button.

3. If you wish to set another mode, repeat the setting operation in step 2.
   When you wish to delete a set application function directly from the screen concerned, press the CANCEL key. The original settings are re-activated and the basic screen re-appears.
   - To cancel the selections of all application functions (not selected), press the ALL CLEAR key.
4. Pressing the OK key causes the basic screen to re-appear.

[Limiting conditions]

a. While the application function selection screen is displayed, the copier does not accept input from the INTERRUPT button.
b. Refer to the description of each function regarding the limitations on button operations when an application function has been selected.

c. Some combinations of application functions cannot be used. When an application function is selected, the application functions that cannot be used simultaneously with it are displayed against a shaded background, indicating that they cannot be selected. Allowable combinations of application functions are indicated by (●) in the following table.


Application Function
File Edit
Image Edit
Other Function
Sheet/Cover Insertion mode
Chapter mode
Combination mode
Booklet mode
OHP Inter leave mode
Image Insert mode
Dual Page mode
Mixed Original mode
Text/Photo Enhance mode
Reverse Image mode
Repeat mode
Frame/Fold Erasure mode
AUTO Layout mode
Thin/Thick Paper mode
Image Shift mode
Non-image Area Erase mode
Memory Copy mode
S-fine mode
Output mode
Two-sided copy mode
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬

①: The group mode can not be selected.
②: 1 → 2, 2 → 2 copy are enabled.
③: It is possible to select from the booklet mode tothe dual page mode, however, impossible from the dual page mode to the booklet mode.
④: The fold erasure mode can not be selected.
⑤: The image shift mode can not be selected.
⑥: The group and stapler mode can not be selected.
⑦: The sort, group and stapler mode can not be selected.
⑧: 1 → 1, 2 → 1 are enabled.
⑨: 1 → 1, 1 → 2 are enabled.
⑩: The stapler mode can not be selected.
⑪: The auto mode can not be selected.
⑫: The vertical/horizontal orientation can not be selected.
⑬: The sort and stapler mode can not be selected.

[2] Sheet/Cover Insertion mode

This mode is used to insert sheets of colored paper, for example, at arbitrary page positions in a multiple copy output. The paper in the paper feed tray is either inserted directly (as blank sheets), or inserted after originals are copied onto it.

- Normally, tray 1 is used as the paper feed tray. It can also be changed to tray 2,3,4 by using the key operator setting mode. The by-pass feed tray can also be used.
- Up to 15 insertion page positions (including the front and back covers) can be set.
- The originals can be fed from the RADF.

1. Sheet Insertion type selection

There are two types of sheet insertion which differ depending upon whether or not the sheets to be inserted are to have originals copied onto them.

Type 1 ... The sheets are inserted after originals have been copied onto them.

Type 2 ... The sheets in the paper feed tray are inserted directly (as blank sheets).

Combinations of the above two types and the positions at which the pages are to be inserted can be selected using six keys.

The functions of the keys used to select the type of insertion sheets are shown below. (Key combinations can be made freely.)

Type	Key	Function
1	FRONT COPY	Copies the front cover of the original on the paper and inserts the paper at the front cover position.
	BACK COPY	Copies the back cover of the original on the paper and inserts the paper at the back cover position.
	COPY INSERTION	Copies an arbitrary page of the original on the paper, and inserts the paper at the corresponding page position.
2	FRONT BLANK	Directly inserts the paper in the paper feed tray at the front cover position.
	BACK BLANK	Directly inserts the paper in the paper feed tray at the back cover position.
	BLANK INSERTION	Directly inserts the paper in the paper feed tray at an arbitrary page position.

2. Preparations for using the Sheet/Cover Insertion mode

a. Place the colored paper, or other paper to be used as the insertion sheet in the paper feed tray.

b. Place paper of the same size as the insertion sheet of paper in another paper feed tray.

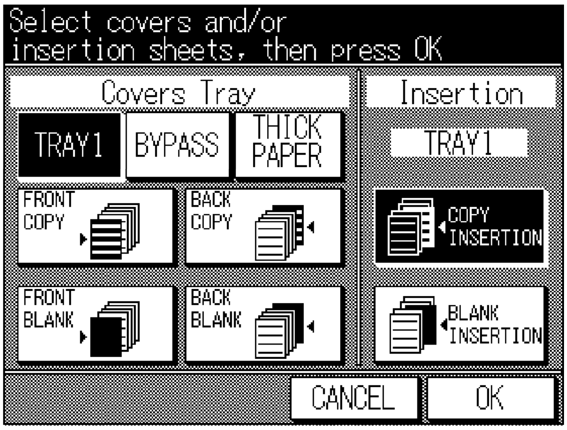
c. Set the copy quantity and copy mode.

3. Setting method

(1) Select the Sheet/Cover Insertion mode using the application function selection screen.

The type selection screen appears.

[Type selection screen]



Select covers and/or insertion sheets, then press OK

(2) Select the type of sheet insertion.

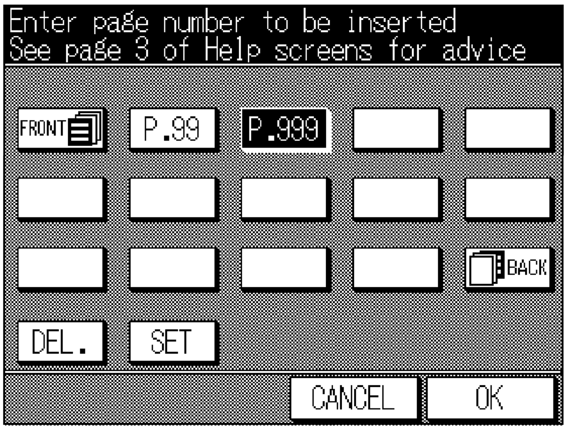
(3) When inserting the front and back covers, select the tray from which the insertion sheets are to be fed.

(4) Press the OK key.

The page setting screen appears.

Caution: If the cover page only mode is selected, the page number setting screen will not be displayed, and the application function selection screen will re-appears instead.

[Page setting screen]



Enter page number to be inserted
See page 3 of Help screens for advice

(5) Set the positions at which the sheets are to be inserted, using the [ ] key (blank key) and the copy quantity setting buttons.
  - You can set up to 15 positions (including the front and back covers).
  - If you select the front or back cover using the type selection screen, “Front” or “Back” is automatically set.
  - To insert a sheet with a copy on it (type 1), enter the page number of the corresponding original.
  - To insert a blank sheet (type 2), enter the page number of the original immediately prior to the insertion position.

(6) If you make an incorrect entry, select the incorrect entry and cancel it using the [DEL.] key.
(7) Press the [SET] key to finalize the page setting.
(8) Repeat steps (5) to (7) until you have set the necessary pages.
(9) Press the [OK] key.
The application function selection screen re-appears.

Caution:

1. If 0 or a value greater than the number of pages in the original is set, this setting will be ignored.
2. Page numbers set at random will be rearranged in ascending order, and identical page numbers will be ignored.
3. In the case of Type 1, when the single-sided-double-sided mode is activated, only an even-numbered page designation is valid. If an odd-numbered designation is made, the number of the pages will automatically be reduced by one, and treated as an even-numbered page.
4. In the case of Type 2, when the single-sided-double-sided mode is activated, only an odd-numbered page designation is valid. If an even-numbered designation is made, the number of pages will be automatically increased by one.
5. In the case of Type 1, when the double-sided-single-sided mode is activated, only the face side of the designated originals will be copied to the intersheets.

[Limiting conditions]

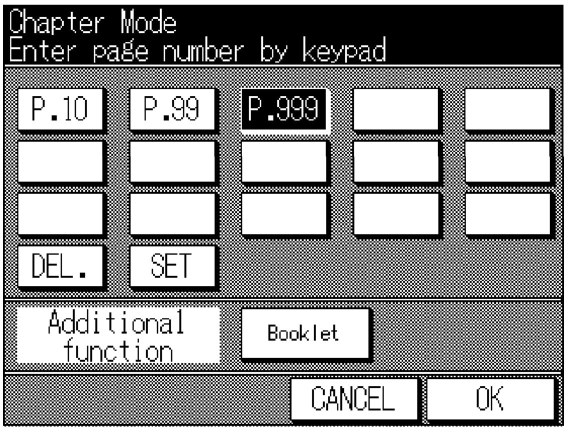
a. Interleaved blank sheets are not counted. Copied insertion are counted.
b. Selections for Type 1 and 2 cannot be made simultaneously. If the key for a different type is touched, the type last selected will take priority and the previous setting will be cancelled.
c. When the Sheet/Cover Insertion mode is selected, the APS mode will be cancelled and a paper feed tray of the same size as the paper tray 1, together with the AMS mode, will be selected automatically. If there is no tray of the same paper size, copying will not be possible.
d. If you select the Sheet/Cover Insertion mode while the group mode is selected, the sort mode is automatically activated.
e. You cannot select the following modes simultaneously with the Sheet/Cover Insertion mode.
  - Chapter mode
  - Combination mode
  - Booklet mode
  - OHP Inter leave mode
  - Image Insert mode
  - Dual Page mode
  - Mixed Original mode
  - Repeat mode
  - AUTO Layout mode
  - Thin/Thick Paper mode
  - Non-image Area Erase mode
  - S-fine mode

[3] Chapter mode

This mode ensures that the beginning of each section is always a new page (face side). By setting the original sheet number corresponding to the beginning of each section when using the two-sided copy mode, if the sheet concerned corresponds to a reverse side page, the reverse side page is exited as a blank sheet of paper, and the sheet is copied onto the next face side page.

1. Setting method

(1) Select the Chapter mode using the application function selection screen.
The page setting screen is displayed.
[Chapterization/Page setting screen]



Chapter Mode
Enter page number by keypad

(2) Set the page number of the original corresponding to the beginning of the section using the ☐ key (blank key) and the copy quantity setting buttons.
(3) If you make an incorrect entry, select the incorrect page, and then press the DEL. key.
(4) Press the SET key to finalize the page setting.
(5) Repeat steps (2) to (4) until you have specified the necessary pages.
(6) When using with the booklet mode, press the Booklet mode.
(7) Press the OK key.
The application function selection screen re-appears.

Caution:

1. If you attempt to enter 0 or a value that is greater than the number of originals, the entry is ignored.
2. Page numbers that are entered randomly are automatically re-arranged in ascending order, and any identical page numbers are ignored.

[Limiting conditions]

a. Number of setting points: Max. 15
b. Number of originals: Max. 999
c. The only copy modes that can be used are the one-sided original/two-sided copy mode and the two-sided original/two-sided copy mode.
d. You cannot select the following modes simultaneously with the Chapter mode.
   - Sheet/Cover insertion mode
   - Combination mode
   - OHP Inter leave mode
   - Image Insert mode
   - Dual page mode
   - Repeat mode
   - AUTO Layout mode
   - Thin/Thick Paper mode
   - Non-image Area Erase mode
   - S-fine mode

[4] Combination mode

The Combination mode has the following two functions.

1. 2 in 1 / 4 in 1 / 8 in 1

A function that copies several originals onto a single sheet of copy paper.

You can select either 2, 4 or 8 originals. Also, you can select a horizontal layout or a vertical layout.

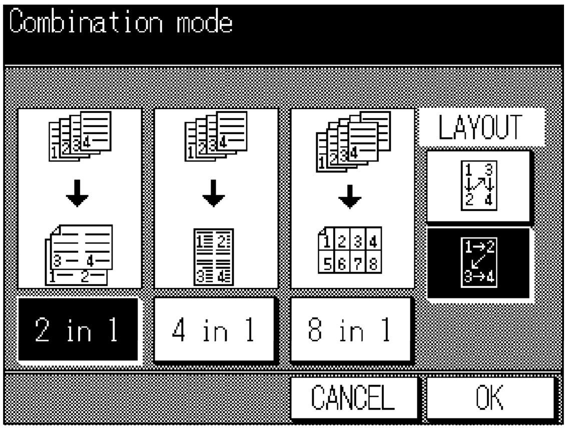
If the number of originals is less than the standard number, blank copy images are added to the copy.

Original quantity	Combination order	Original layout	
		Portrait	Landscape
2 (2 in 1)	Vertical order	1 2	1 2
	Horizontal order	1 2	1 2
4 (4 in 1)	Vertical order	1 3 2 4	1 3 2 4
	Horizontal order	1 2 3 4	1 2 3 4
8 (8 in 1)	Vertical order	1 3 5 7 2 4 6 8	1 5 2 6 3 7 4 8
	Horizontal order	1 2 3 4 5 6 7 8	1 2 3 4 5 6 7 8

1. Setting method

(1) Select the Combination mode using the application function selection screen. The combination selection screen appears.

[Combination selection screen]



(2) Select the Combination mode function.

(3) Press the OK key.

The application function selection screen re-appears.

[Limiting conditions]

a. If the RADF is open, you cannot start copying until you close it. Also, in cases where the RADF cannot be selected, you cannot select the Combination mode. However, it is possible to read the image of an original on the platen using memory.

b. You cannot select different Combination mode functions simultaneously. If you select a different function, the function selected last has precedence, and the previous setting is canceled.

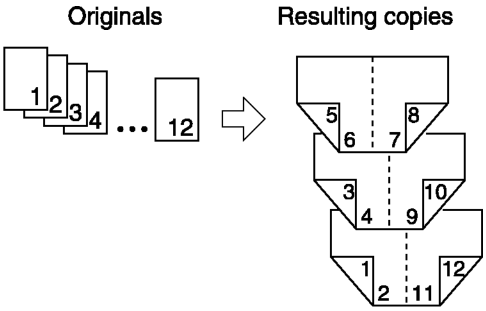
c. If you select the 2 in 1, 4 in 1 or 8 in 1, the RADF and AMS modes are selected. However, the AMS mode can be canceled.

d. If you set a blank margin in the Image shift mode, then use the 2 in 1, 4 in 1 or 8 in 1 mode, the margin is set with respect to the entire copy paper.

e. You cannot select the following modes simultaneously with the Combination mode.
   - Sheet/Cover insertion mode
   - Chapter mode
   - Booklet mode
   - Image Insert mode
   - Dual Page mode
   - Mixed Original mode
   - Repeat mode
   - Frame/Fold Erasure mode (Only Frame Erasure mode is enabled)
   - AUTO Layout mode
   - Non-image Area Erase mode
   - S-fine mode

[5] Booklet Mode

This mode copies four originals at a time on one sheet of copy paper, two on the face side and two on the reverse side. The originals are read in a sequence such that the resulting copies when placed on top of each other and folded form a booklet which can be read in the page sequence of the originals.



1. Setting method

(1) Select the Booklet mode using the application function selection screen.
The Booklet mode has no dedicated setting screen.

[Limiting conditions]

a. When you select the booklet mode, the RADF mode is automatically selected, and cannot be canceled. However, if the memory mode is selected simultaneously with the booklet mode, the RADF mode is not automatically selected.

b. You cannot select the one-sided original/one-sided copy mode or the two-sided original/one-sided copy mode.

c. You cannot select the following modes simultaneously with the Booklet mode.
   - Sheet/Cover insertion mode
   - Combination mode
   - OHP Inter leave mode
   - Mixed Original mode
   - Repeat mode
   - AUTO Layout mode
   - Thin/Thick Paper mode
   - Non-image Area Erase mode
   - S-fine mode

[6] OHP Inter leave mode

This mode copies an original onto OHP film and also outputs either a copy of the same original on plain paper or a blank sheet of plain paper together with the OHP film. The OHP Inter leave mode is divided into the following two modes.

Blank sheet interleaving ...
Select this mode when you wish to output one sheet of blank plain paper at a time between successive OHP film copies.

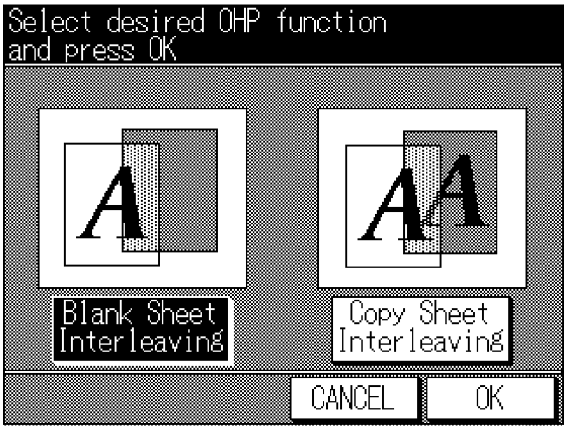
Copy sheet interleaving ...
Select this mode when you wish to copy one original at a time on OHP film and plain paper alternately.

1. Preparations for using the OHP Inter leave mode

a. Place the OHP film in the by-pass feed tray. (See *1.)
b. Place the interleaving sheets in a paper feed tray other than the by-pass feed tray.
c. Set the copy mode.
*1: OHP film can only be fed from a by-pass feed tray.
*2: Interleaving sheets loaded in trays 1 to 4.

2. Setting method

(1) Select the OHP Inter leave mode using the application function selection screen.
The OHP Interleaving screen appears.
[OHP Interleaving setting screen]



Select desired OHP function and press OK

(2) Select the desired mode.
Press the Blank Sheet Interleaving key or Copy Sheet Interleaving key.
(3) Press the OK key.
The application function selection screen re-appears.

[Limiting conditions]

a. When you select the OHP Inter leave mode, the APS mode is canceled, and the tray of the same size as the by-pass feed tray and also the AMS mode are automatically selected.
b. Set copy quantity: 1
c. You can only use the one-sided original/one-sided copy or the two-sided original/one-sided copy.
d. If the RADF is open, you cannot start copying until you close it. Also, when the RADF mode cannot be selected, you cannot select the OHP Inter leave mode.
e. You cannot select the following modes simultaneously with the OHP Inter leave mode.
   - Sheet/Cover insertion mode
   - Chapter mode
   - Booklet mode
   - Image Insert mode
   - Mixed Original mode
   - Repeat mode
   - Thin/Thick Paper mode
   - S-fine mode

[7] Image Insert mode

This mode inserts a copy of an original on the platen between copies of multiple originals fed from the RADF. The copy of the original on the platen is inserted immediately after the specified page.

1. Setting method

(1) Select the Image Insert mode using the application function selection screen.
The page setting screen appears.
[Image Insertion/page setting screen]

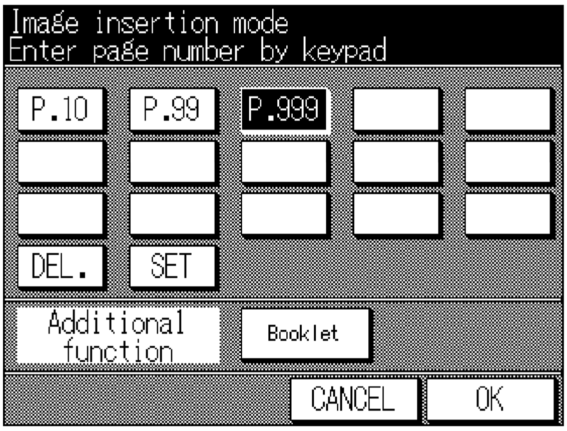


Image insertion mode
Enter page number by keypad

(2) Enter the page number of the page before the original that is to be inserted, using the copy quantity setting buttons.
(3) If you make an incorrect entry, cancel it using the DEL. key.
(4) Press the SET key to finalize the page setting.
(5) Repeat steps (2) to (4) until you have specified the necessary pages.
(6) When using with the booklet mode, press the Booklet mode.
(7) Press the OK key.
The application function selection screen re-appears.

Caution:

1. If you attempt to enter a value that is greater than the number of originals, the insertion page is inserted at the last page.
2. Page numbers that are entered randomly are automatically re-arranged in ascending order, and any identical page numbers are ignored.
3. If you specify the same page No. a number of times, the insertion original is inserted continuously exactly the specified number of times.

2. Procedure for using the Image Insert mode

a. Press the APPLICATION button, and set the Image Insert mode.
b. Place the originals on the RADF and press the SCAN key.
The originals on the RADF are read to the memory.
c. Confirm that the originals on the RADF have been read, and then open the RADF and place the insertion original on the platen.
d. Press the SCAN key.
The insertion original is read from the platen to the memory.
Each time you press the SCAN key, the original on the platen is read as the insertion original.
e. Press the START PRINT button.
Copies start to be output.

[Limiting conditions]

a. Number of set positions: Max. 15
b. Number of set pages: Max. 999
c. Once you open the RADF, the original on the platen is read, and the originals in the RADF cannot be read again.
d. You cannot select the following modes simultaneously with the Image Insert mode.
    - Sheet/Cover insertion mode
    - Chapter mode
    - Combination mode
    - OHP Inter leave mode
    - Dual Page mode
    - Mixed Original mode
    - Repeat mode
    - AUTO Layout mode
    - Image Shift mode
    - Non-image Area Erase mode
    - S-fine mode

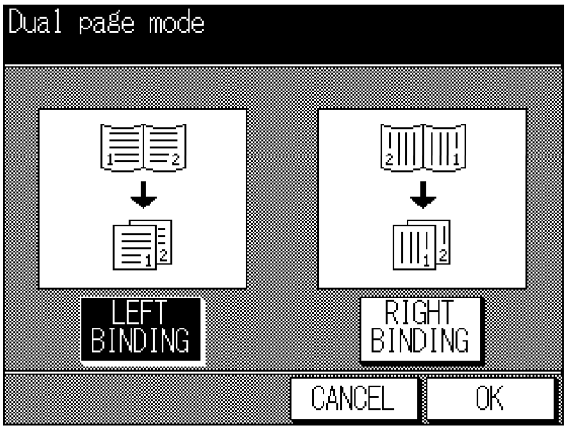
[8] Dual Page mode

This mode divides a single original into left and right halves, and copies each half separately.

1. Setting method

Select the Dual Page mode using the application function selection screen.

[Dual Page mode/page setting screen]



- Frame Ensure mode is automatically selected. However, you can cancel it if you desire.

(1) Select the mode to be desired. Press LEFT BINDING or RIGHT BINDING key.

(2) Press the OK key.
The application function selection screen re-appears.

2. Procedure for using the Dual Page mode

(1) Press the APPLICATION button, and select the Dual Page mode.

(2) Place the original on the platen, and push it against the original stopper plate.

(3) Press the SCAN key.
The original is read to the memory.

(4) Confirm that all of the originals are read to the memory in the same way, and then press the START PRINT button to start the copy process.

[Limiting conditions]

a. An RADF cannot be used.

b. You cannot select the two-sided original/two-sided copy mode or the two-sided original/one-sided copy mode.

c. If the original is judged to be a non-standard size, it is treated as the minimum original size.

d. You cannot select the following modes simultaneously with the Dual page mode.
  - Sheet/Cover insertion mode
  - Chapter mode
  - Combination mode
  - Image Insert mode
  - Mixed Original mode
  - Repeat mode
  - Image Shift mode
  - S-fine mode

[9] Mixed Original mode

You can load a mixture of originals either when using the RADF, or when using the platen mode combined with the memory mode.

If the Mixed Original mode is selected, the APS is automatically selected. When you select a size, the AMS is automatically selected.

1. Setting method

The Mixed Original mode has no dedicated setting screen. Select the mixed original mode using the application function selection screen.

[Limiting conditions]

a. Maximum number of original faces that can be read: 50

b. Original size combinations are as follows.

Standard original (Original with a maximum width)	Mixed Original
A3/A4	B5, A4R, A5
B4/B5	A4R, A5, B5R
A4R/A5	B5R
B5R	A5R
A5R	B6R
B6R	None
8.5 X 11	None

c. When making a one-sided original to two-sided copy, copy paper of a size that matches the face side of the original is selected.

d. You cannot select the following modes simultaneously with the Mixed Original mode.
- Sheet/Cover insertion mode
- Combination mode
- Booklet mode
- OHP Inter leave mode
- Image Insert mode
- Dual Page mode
- Repeat mode
- AUTO Layout mode
- Image Shift mode
- Non-image Area Erase mode
- S-fine mode

[10] Text/Photo Enhance Mode

This mode is used to select a tone that is optimum for the image of the original. It can be used simultaneously with all application functions.

The Text/Photo Enhance mode consists of the following three modes.

Increase contrast ... Select this mode when copying an original with faint text such as text written with a pencil.

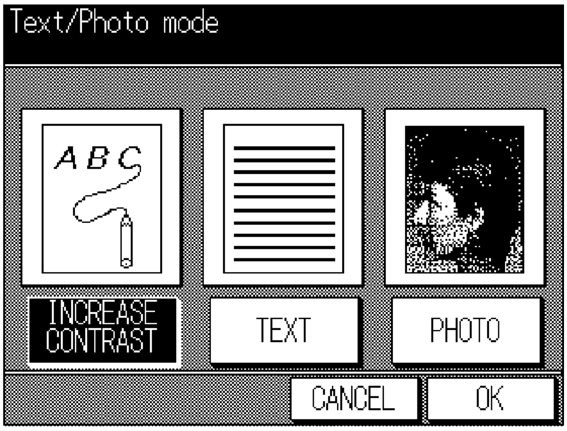
Text ... . Select this mode when copying an original that consists of text alone.

Photo ... . Select this mode when copying an original that has tonality, such as a photograph.

1. Setting method

(1) Press the Text/Photo Enhance key using the application function selection screen.

[Text/Photo Enhance mode setting screen]



(2) Select the INCREASE CONTRAST key, TEXT key or PHOTO key.

(3) Press the OK key.

The application function selection screen re-appears.

[11] Reverse Image mode

This mode copies an original with the black and white of the original image reversed.

1. Setting method

The Reverse Image mode has no dedicated setting screen. Select the Reverse Image mode using the application function selection screen.

[Limiting Conditions]

You cannot select the following modes simultaneously with the Reverse Image mode.

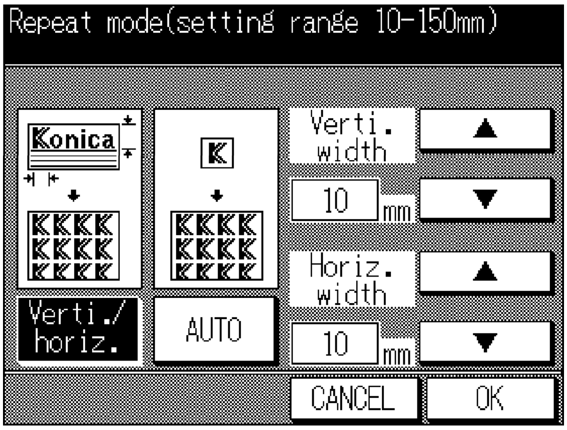
- Auto Repeat mode
- AUTO Layout mode
- Non-image Area Erase mode

[12] Repeat mode

This mode repeatedly copies the read images of originals placed on the platen. You can select either a mode in which the read zone is specified using a number, or a mode that automatically identifies the read zone using the Non-image Area Erase mode.

1. Setting method

(1) Select the Repeat mode using the application function selection screen.
The Repeat mode setting screen appears.
[Repeat Image setting screen]



Repeat mode(setting range 10-150mm)

Verti. width 10 mm

Horiz. width 10 mm

(2) To specify the read zone, press the Verti./horiz. key. To automatically identify the read zone, select the AUTO key. In both cases, the RADF must be open.

(3) To specify the read zone, set the vertical and horizontal dimensions of the read zone using the ▲ and ▼ key. (You can set the range between 10 and 150 mm in 1 mm step.)

(4) Press the OK key.
The application function selection screen re-appears.

Caution:

1. When the Verti./horiz. key is pressed, the zero point of the specified dimensions for the read zone is the rear of the platen.
2. If the Non-image Area Erase mode is selected simultaneously, the width amount is automatically detected.
In this case, the setting conditions of the next page should be met.

[Limiting conditions]

a. In the Repeat mode, the copy mode is limited to the one-sided original/one-sided copy mode (platen), one-sided original/two-sided copy (memory mode).

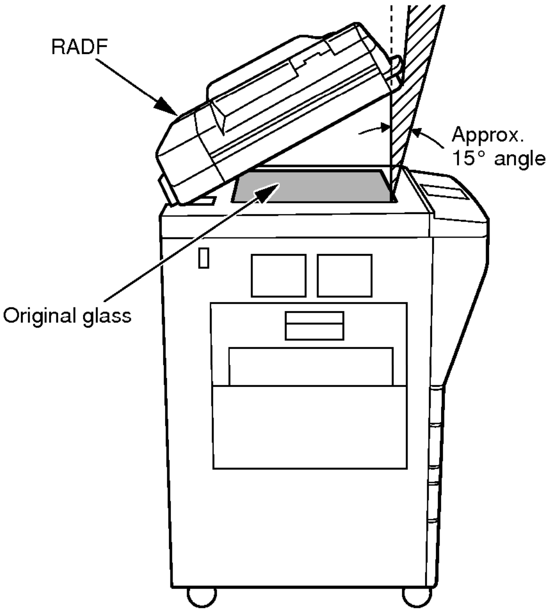
b. The repeat zone is limited when the enlargement magnification is selected.
  - When 200% is selected: Within A4 read width
  - When 400% is selected: 1/2 of the read width when 200% is selected

c. You cannot select the following modes simultaneously with the Repeat mode.
  - Sheet/Cover insertion mode
  - Chapter mode
  - Combination mode
  - Booklet mode
  - OHP Inter leave mode
  - Image Shift mode
  - Dual Page mode
  - Mixed Original mode
  - Reverse Image mode (auto)
  - Frame/Fold Erasure mode
  - AUTO Layout mode
  - Image Insert mode
  - Non-image Area Erase mode (Verti./horiz.)
  - S-fine mode

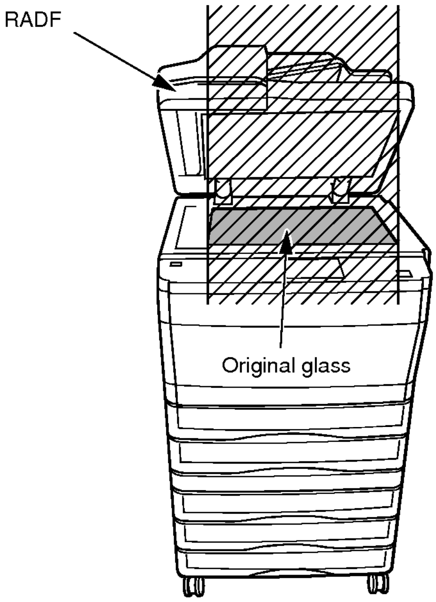
d. Setting conditions

The Repeat, Auto Layout, Non-image Area Erase mode and APS, AMS with RADF opened may not function correctly depending on a brightness and position of a source of light. If solid color (black) is not printed out when a sky shot copy is made with RADF opened, it is necessary to change the setting position of the copier, or disable the Repeat, Auto Layout, Non-image Area Erase mode selection using the software SW 2 in the 25 mode.

In order to allow the Non-image Area Erase mode to function properly, set the copier again to prevent a lighting from going into the diagonally shaded areas in the figure below.



Side view of the copier



Front view of the copier

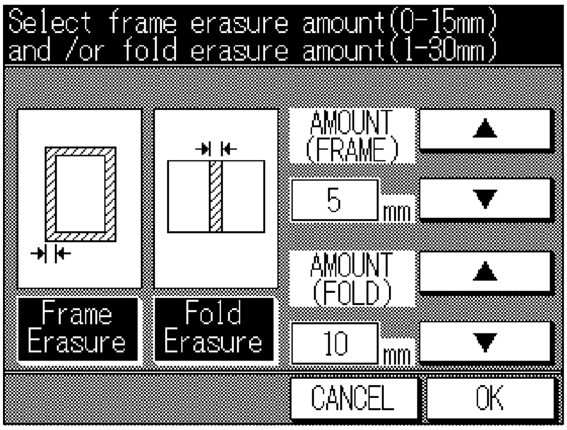
[13] Frame/Fold Erasure mode

This mode sets the amount of erasure when you wish to make a frame erasure/fold erasure copy.

Frame erasure is used when you wish to erase the frame marks when copying a book. Fold erase is used when you wish to erase the fold at the center of an open book.

1. Setting method

(1) Select the Frame/Fold Erasure mode using the application function selection screen.
The Frame/Fold Erasure setting screen appears.
[Frame/Fold Erasure setting screen]



Select frame erasure amount(0-15mm)
and /or fold erasure amount(1-30mm)

AMOUNT (FRAME): 5 mm

AMOUNT (FOLD): 10 mm

(2) Select the [Frame Erasure] or [Fold Erasure].
You can select both at the same time.

(3) Set the erasure amount using the [▲] or [▼] key.
(in 1mm steps)
Frame erasure setting range: 1 mm to 15 mm
Fold erasure setting range: 1 mm to 30 mm
When you turn the power switch ON, the previously set value is memorized.

(4) Press the [OK] key.
The application function selection screen re-appears.

[Limiting conditions]

a. Frame erasure/fold erasure does not take place if the detected original size is not one of the following.
   - A3/B4/A4R/B5R/A5R/B6/11x17/8.5x14/8.5x11R

b. You cannot select the following modes simultaneously with the Frame/Fold Erasure mode.
   - Combination mode
   - Booklet mode (Fold Erasure)
   - Mixed Original mode (Fold Erasure)
   - Repeat mode

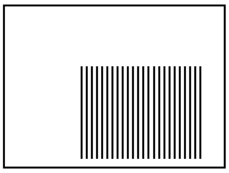
[14] AUTO Layout mode

This mode detects the position and size of the original on the platen, and copies the original in such a way that the image comes to the center of the copy paper.

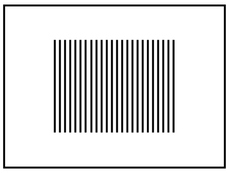
When the AUTO Layout mode is selected, the Non-image Area Erase mode is also selected automatically.

Use this mode with the RADF open.

●When the Non-image Area Erase mode is not canceled

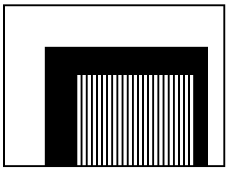


No automatic layout

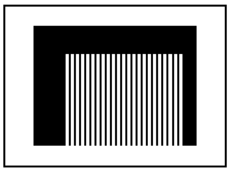


Automatic layout selected

●When the Non-image Area Erase mode is canceled



No automatic layout



Automatic layout selected

1. Setting method

The AUTO Layout mode has no dedicated setting screen.
The AUTO Layout mode is selected by pressing the [AUTO Layout] key on the application function selection screen.

[Limiting conditions]

a. The copy mode is limited to the one-sided original/one-sided copy mode. However, Memory copy or Dual Page mode is selected, it is possible to select the one-sided original/two-sided copy mode.

b. The APS and AMS modes are automatically canceled, and if a magnification has not been set, life size is selected.

c. The RADF mode is automatically canceled, and the platen mode is activated.

d. When the RADF is closed, the START PRINT button does not function until the RADF is opened.

e. If the original size is larger than the copy paper size, the leading edge of the original is aligned with the leading edge of the copy paper, and AUTO Layout mode does not function.

f. When this mode is used in combination with the Non-image Area Erase mode, the edge of the image is sometimes cut off a distance of between 2 and 5 mm.
In this case, the setting conditions of [2] Repeat mode should be met.

g. You cannot select the following modes simultaneously with the AUTO Layout mode.
    - Sheet/Cover insertion mode
    - Chapter mode
    - Combination mode
    - Booklet mode
    - Image Insert mode
    - Mixed Original mode
    - Reverse Image mode
    - Image Shift mode
    - Repeat mode
    - S-fine mode

h. Setting condition
See [12] Repeat mode.

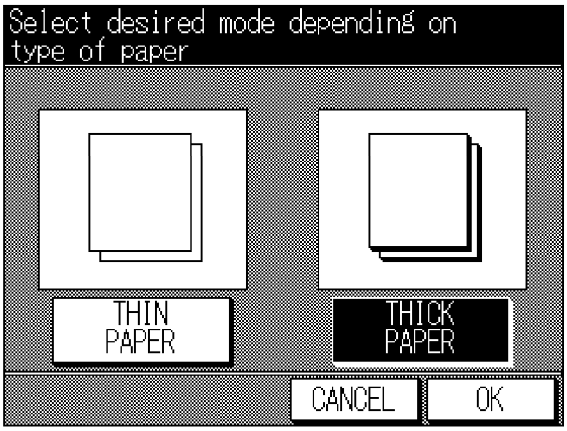
[15] Thin/Thick Paper mode

This mode is used to make copies on thin paper or thick paper. An example of thin paper is tracing paper, and an example of thick paper is label paper.

1. Setting method

(1) Select the Thin/Thick Paper mode using the application function selection screen. The Thin/Thick Paper setting screen appears.

[Thin/Thick Paper setting screen]



Select desired mode depending on type of paper

(2) Select the desired mode.
Press the THIN PAPER key or the THICK PAPER key.

(3) Press the OK key.
The application function selection screen re-appears.

[Limiting conditions]

a. When the Thick paper mode is selected, the copy modes are limited to the one-sided original/one-sided copy mode and the two-sided original/one-sided copy mode.
b. When the Thick paper mode is selected, the APS and AMS modes are automatically canceled, and if a magnification has not been set, life size is selected.
c. When the Thick paper mode is selected, you can only use the by-pass feed tray as the paper feed tray.
d. If you select the THICK PAPER key, the fixing temperature and polygon mirror speed will change, causing a waiting time from when the START PRINT button is pressed until the start of paper feed.
e. When the Thick paper mode is selected in combination with Staple mode, a maximum number of thick paper which can be stapled is 20. If the number of sheets more than the maximum is selected, the Staple mode is automatically canceled.
f. You cannot select the following modes simultaneously with the THICK PAPER copy mode.
    - Sheet/Cover insertion mode
    - Chapter mode
    - Booklet mode
    - OHP Inter leave mode
    - Two-sided copy (1-2, 2-2)

[16] Image Shift mode

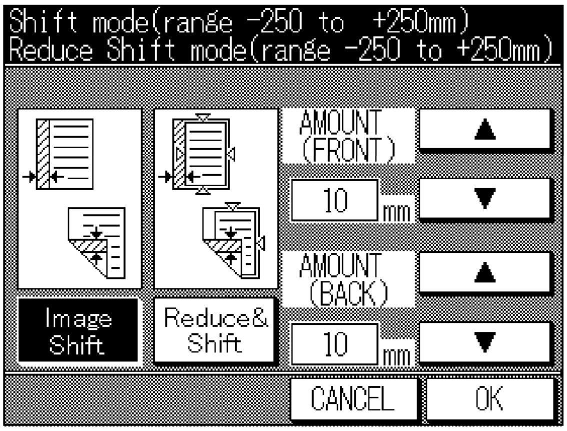
This mode creates a binding margin by shifting the read image before it is copied. In the Image Shift mode, you can select either Shift or Reduction shift.

Image Shift	The image shifts by the specified amount. An image that protrudes as a result of being shifted will be partially cut off when copied. (Settings can be made for both the front and reverse sides of the copy.)
Reduce&shift ..	The image shifts by the specified amount, and simultaneously it is reduced to an extent that it is not partially cut off when copied. (The same settings are made for both the face side and reverse side.)

1. Setting method

(1) Select the Image Shift mode using the application function selection screen. The Image Shift setting screen appears.

△3 **[Image Shift setting screen (Example: Image shift)]**



Shift mode(range -250 to +250mm)
Reduce Shift mode(range -250 to +250mm)

AMOUNT (FRONT) 10 mm

AMOUNT (BACK) 10 mm

(2) Select the desired mode.
Press the Image Shift or Reduce& Shift key.
(3) Set the shift amount using the ▲ or ▼ key.
△3 Setting range: – 250 to 250 mm
(4) Press the OK key.
The application function selection screen re-appears.

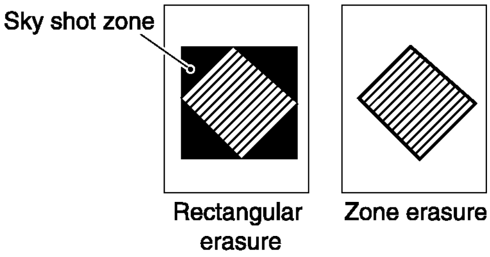
[Limiting conditions]

a. You cannot select the following modes simultaneously with the Image Shift mode.
   - Image Insert mode
   - Dual Page mode
   - Mixed Original mode
   - Repeat mode
   - AUTO Layout mode
   - Non-image Area Erase mode
   - S-fine mode

[17] Non-image Area Erase mode

This mode detects the zone of the original on the platen, and erases the image data other than that of the original.
The following two methods can be used to delete data. Select the desired method using DIP SW 8-0 in the 25 mode.

Rectangular erasure....	Image processing takes place in a rectangular area the sides of which are parallel to the sides of the platen.
Zone erasure	Image processing takes place taking into account the tilt of the original.



1. Setting method

Non-image Area Erase mode has no dedicated setting screen. It is selected by pressing the Non-image Area Erase key on the application function selection screen.

[Limiting conditions]

a. The copy mode is limited to the one-sided original/one-sided copy mode, one-sided original/two-sided copy (memory mode).
b. The APS and AMS modes are automatically canceled, and if a magnification has not been set, life size is selected.
c. The RADF mode is automatically canceled, and the platen mode is activated.
d. When the RADF is closed, the START PRINT button does not function until the RADF is opened.
e. The edge of the original image is sometimes cut off a distance of between 2 and 5 mm.
f. If the detected image of the original is not within the recording zone of paper, a blank sheet is output.
g. You cannot select the following modes simultaneously with the Non-image Area Erase mode
   - Sheet/Cover insertion mode
   - Chapter mode
   - Combination mode
   - Booklet mode
   - Image Insert mode
   - Mixed Original mode
   - Reverse Image mode
   - Image Shift mode

h. Setting conditions
   See [12] Repeat mode.

[18] Memory copy mode

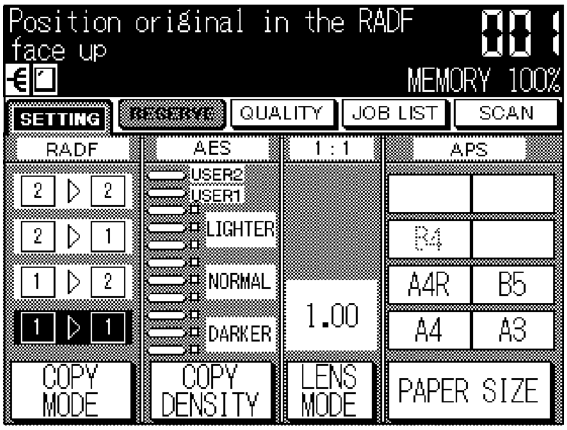
Several batches of documents can be scanned into memory then copied as one job.

The originals that has been read are stored in the memory, and by pressing the START PRINT button will be output as are document.

This feature allows for more than 50 originals to be scanned into memory if using the RADF over conning the RADF stacking capacity.

The maximum number of originals that can be scanned into memory is limited by the machines total memory capacity.

[Basic screen]



Position original in the RADF face up

001

MEMORY 100%

SETTING
RESERVE
QUALITY
JOB LIST
SCAN
RADF
AES
1 : 1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
B4
A4R
B5
A4
A3
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

1. Setting method

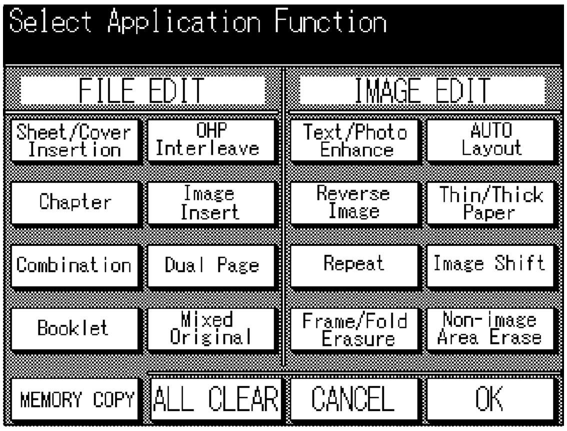
(1) Place the original on the RADF or platen, and press the SCAN key.

(2) If there is a next original, repeat step 1.

(3) After checking that all originals has been read, press the START PRINT button. Output is started.

2. Procedure when using with the application function

[Application function selection screen]



Select Application Function

FILE EDIT
IMAGE EDIT
Sheet/Cover Insertion
OHP Interleave
Text/Photo Enhance
AUTO Layout
Chapter
Image Insert
Reverse Image
Thin/Thick Paper
Combination
Dual Page
Repeat
Image Shift
Booklet
Mixed Original
Frame/Fold Erasure
Non-image Area Erase
MEMORY COPY
ALL CLEAR
CANCEL
OK

(1) Select the arbitrary application function on the application function screen.

(2) Press the MEMORY COPY key.

(3) Press the OK key.

(4) Place the original on the RADF or original glass, and press the SCAN key.

(5) After checking that all originals has been read, press the START PRINT button. Output is started.

[Limiting condition]

You cannot select the following mode simultaneously with the memory copy mode.

- S-fine mode

JOB MEMORY

[1] Job memory write

This function is used to store in advance various copy conditions, such as frequently used magnifications, density settings and copy modes, other than the initial conditions.
Fifteen patterns can be written to the job memory of this machine. Also, a name can be allocated to a job memory in which copy conditions have been stored.

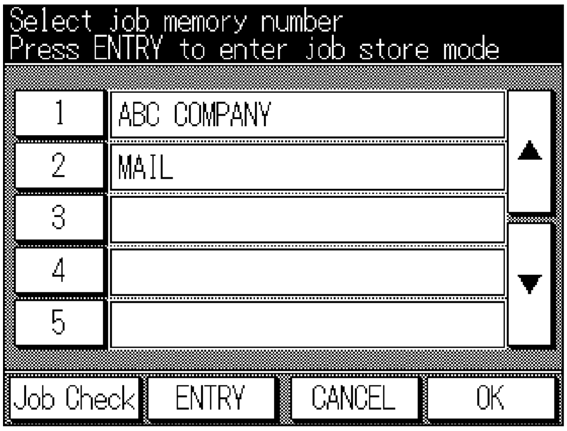
1. Preparations for writing copy conditions to the job memory

(1) Set the copy conditions to be written in advance.

2. Setting method

Caution: To interrupt a copy condition write operation, press the AUTO RESET button.

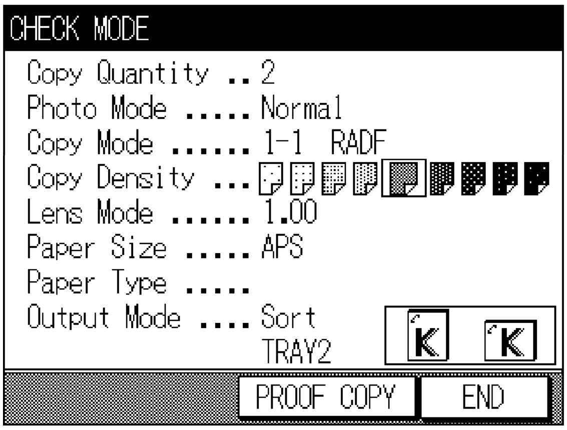
(1) Select the JOB MEMORY button.
The Job No. selection screen appears.
[Job No. selection screen]



Select job memory number
Press ENTRY to enter job store mode

1 ABC COMPANY
2 MAIL
3
4
5

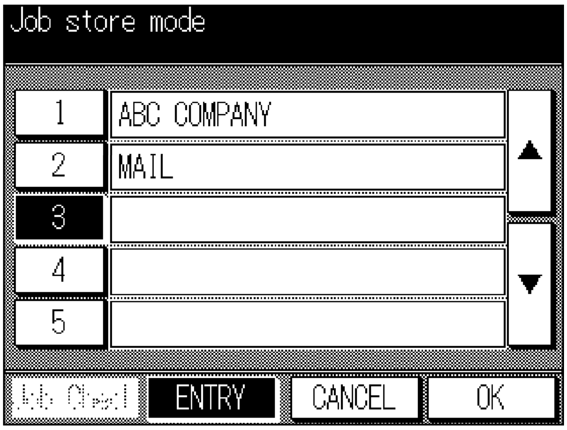
(2) Press the ENTRY key.
The copy contents check screen appears.
[Copy contents check screen]



CHECK MODE

```
Copy Quantity .. 2
Photo Mode ..... Normal
Copy Mode ...... 1-1  RADF
Copy Density ...
Lens Mode ...... 1.00
Paper Size ..... APS
Paper Type .....
Output Mode .... Sort
                 TRAY2
```

(3) Check the contents of the copy conditions to be written to the memory, and if they are correct press the OK key.
The job No. registration screen appears.
[Job No. registration screen]



Job store mode

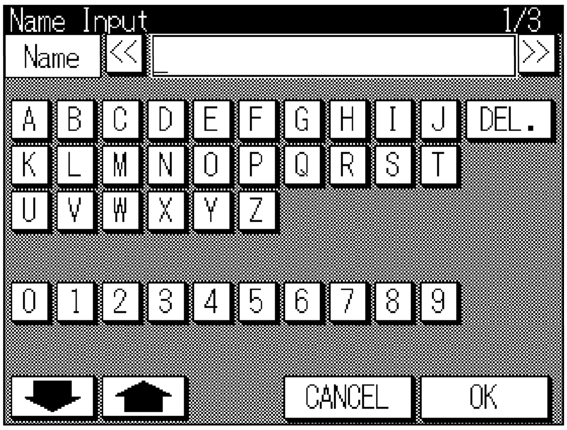
1 ABC COMPANY
2 MAIL
3
4
5

- If it is necessary to correct any of the copy conditions, press the CANCEL key to return to the basic screen, and then repeat the copy condition writing operation.

(4) Scroll the screen using the ▲ or ▼ key, and press the key corresponding to the job No. to be written.

Caution: A job No. key that bears the 🔒 (lock) mark cannot be registered unless it is unlocked in the key operator mode, or the memory contents are erased.

(5) Press the OK key.
The job name registration screen appears.
[Job name registration screen]



Name Input 1/3

(6) Input a name using the character keys on the screen. There are the following three input screens. Use the ⬆ or ⬇ key to cause each screen to appear.

- Alphabet/Number keys (Upper case)
- Alphabet/Number keys (Lower case)
- Symbols

(7) Press the OK key.
The job memory writing operation will be ended, and the basic screen will re-appear.

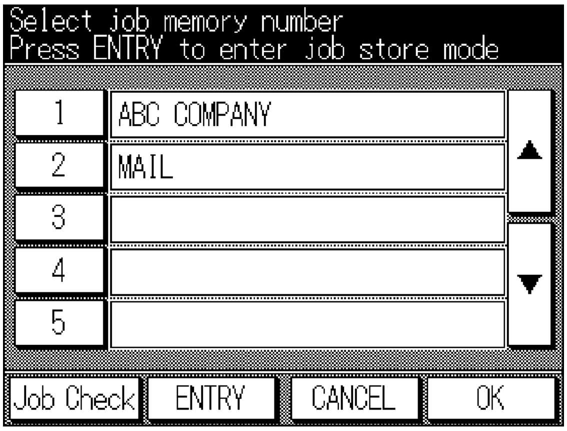
Caution: If the OK key is pressed without inputting the job name, the job name will be displayed as [✻✻✻✻✻✻].

[2] Job memory read

This function is used to read the written copy condition.

1. Setting method

(1) Select the JOB MEMORY button.
The job No. selection screen will appear. (See the job memory write)
[Job No. selection screen]



Select job memory number
Press ENTRY to enter job store mode

1 ABC COMPANY
2 MAIL
3
4
5

(2) Scroll the screen with ▲ or ▼ key and select the job number key to be read. The selected key is displayed in reverse and the Job Check key is displayed.

(3) Press the Job Check key and check the copy condition that is written to the selected job memory. When selecting another job, press the CANCEL key, and select the job number key again.

Caution: Job number keys for jobs which have not been written cannot be selected.

(4) Press the OK key. The written copy condition is read, and the screen returns to the basic screen.

HELP FUNCTION

This machine has a help function that is intended to assist the operator when they do not know how to perform a certain operation.
By pressing the HELP button, the help screen corresponding to the function displayed at that time will appear.

<Basic operations>

a. If the operation screen for which help is required is displayed, and then the HELP button is pressed, the guidance for the operation concerned will be displayed.

b. If the ⬇ key is displayed on the help menu, the continuation of the guidance can be displayed by pressing the ⬇ key. Pressing the ⬆ key causes the previous screen to appear again.

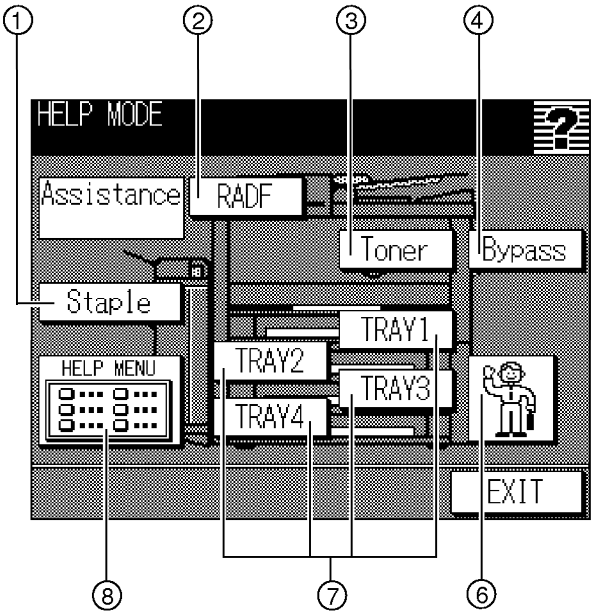
c. Pressing the EXIT key causes the screen prior to the help screen to re-appear.

The following is an outline description of the guidance on the help screen corresponding to each setting screen.
The various help screens have not been included in this service handbook. To check the help screens, call them up on the machine.

1. Help screen from the basic screen

By pressing the HELP button when the basic screen or the initial screen (full auto) is displayed, the help menu corresponding to the basic screen (shown below) will appear.

[Help screen for the basic screen]



No.	Help item		Kind of guidance
①	Staples		About how to replenish staples (1/6-6/6)
②	RADF		About the RADF Method of setting an original
③	Toner		About the toner supply (1/6-6/6)
④	Weekly timer		Weekly timer menu 1. Timer setting 2. Lunch time OFF setting 3. Timer action on/off setting
⑤	By-pass		Loading paper in the by-pass tray
⑥			Phone No. of the service center (When the PM cycle copy count is reached, the help item changes from 🔧 to this symbol and blinks.)
⑦	Trays 1 to 4	Concerning paper supply (1/2-2/2)	* Universal tray * Fixed tray
⑧	Help menu (See *1.)	1. Hard keys	Concerning the hard buttons (buttons on the operation panel) (1/5-5/5)
		2. Screen keys	Concerning the screen keys (keys displayed on the screen)
		3. RADF, original glass	Precautions concerning the RADF and the original glass (1/2-2/2)
		4. Application functions	Concerning application function (1/6-6/6)
		5. Job memory	Concerning the job memory

*1: When the HELP MENU key is displayed, you can return to the help menu screen by pressing the HELP MENU key.

2. Copy mode help

Selection screen	Kind of guidance
Copy mode selection screen	About the copy modes

3. Copy density help

Selection screen	Kind of guidance
Copy density selection screen	About the copy density

4. Magnification help

Selection screen	Kind of guidance
Magnification selection screen Zoom magnification setting screen Vertical/Horizontal zoom magnification setting screen	• About the zoom magnification setting (1/2) • About the Vertical/Horizontal zoom magnification setting (2/2)

5. Tray selection help

Selection screen	Kind of guidance
Tray selection screen	• About the tray (1/2) • About the tray (2/2)

6. Job memory help

Selection screen	Kind of guidance
Job No. selection screen	Concerning job memory (1/3-3/3)
Job contents check screen	
Job contents check screen (registration)	

7. Interrupt copy help

Selection screen	Kind of guidance
Interrupt screen	About the interrupt copy

8. Application screen help

Help item	Kind of guidance
State in which nothing has been selected	About the application functions (1/6-6/6)
State when a mode has been selected but the OK key has not been pressed (See *1)	About the help screen for each application mode

*1: If a plurality of modes has been selected, the guidance for the last selected application function will be displayed.

9. Application function help

Selection screen	Kind of guidance
Sheet Insertion /type setting screen	About the Sheet Insertion (1/4-4/4)
Sheet Insertion/page setting screen	About the Sheet/Cover Insertion • Page setting (1/3) • Page setting (2/3) • Page setting (3/3)
Chapterization setting screen	About the Chapter mode
Combination selection screen	About the Combination mode
Booklet setting screen	About the booklets
OHP Interleaving setting screen	• About the OHP (1/2) • About the OHP (2/2) Setting position of OHP sheets
Image Insertion setting screen	About the Image Insertion
When the Dual Page mode is selected	• About the Dual Page mode (1/3) • About the Dual Page mode (2/3) • About the Dual Page mode (3/3)
When the Mixed Original mode is selected	About the Mixed Original mode
Text/Photo Enhance setting screen	About the Text/Photo Enhance mode
When the Reverse Image mode is selected	About the Reverse Image mode
Repeat setting screen	About the Repeat mode
Frame/Fold Erasure setting screen	About the Frame/Fold Erasure mode
When the AUTO Layout mode is selected	About the AUTO Layout mode
Thin/Thick paper setting screen	About the Thin/Thick paper mode
Image Shift mode setting screen	• About the Image Shift mode (1/2-2/2) Reduction shift
When the Non-image Area Erase mode is selected	About the Non-image Area Erase mode

Caution: If a function has been selected with the application function selection screen, the respective help display can be obtained, even without displaying the setting screen for each function.

10.Help in the event of a jam

Selection screen	Kind of guidance
About the Jam	About the treatment of a jam A number shows a location that a jam occurs. Pressing the [GUIDE] key causes the procedure of dealing with jams to appear.

KEY OPERATOR MODE

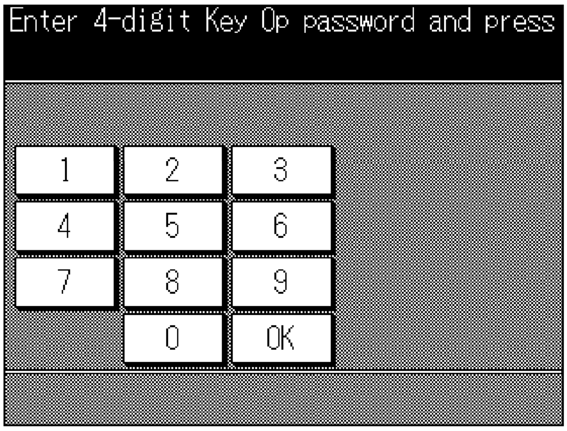
The key operator mode is used to set items to be managed by the operator.

Once the key operator mode has been activated, a copy operation cannot be performed until the power switch is turned OFF and then ON again.

[1] Setting Method

1. Turn the power switch OFF.
2. While pressing the HELP button, turn ON the power switch. The password input screen will appear. (See *1.)

[Password input screen]

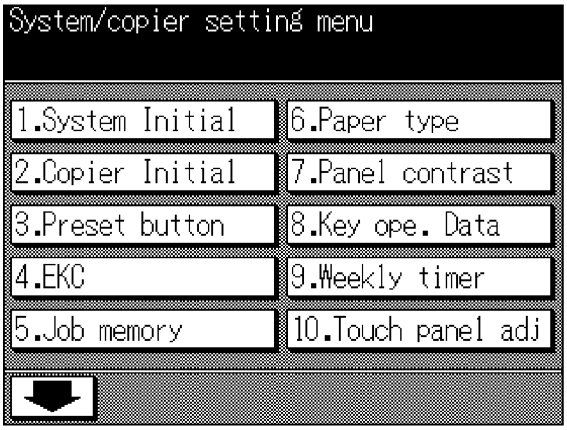


Enter 4-digit Key Op password and press

1
2
3
4
5
6
7
8
9
0
OK

3. Enter a predetermined 4-digits password using the numeric key on the screen .
4. Press the OK key. The key operator menu screen will appear.

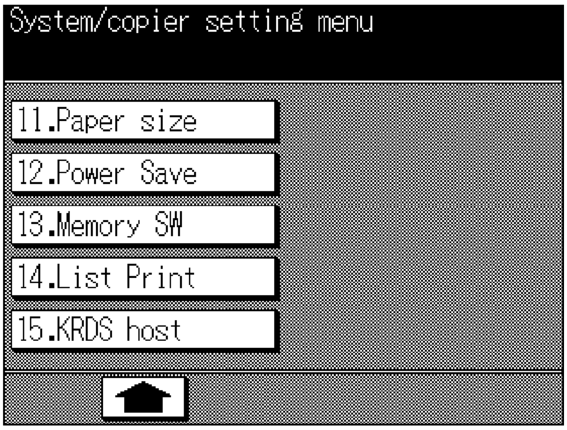
[Key operator menu screen 1/2]



System/copier setting menu

1.System Initial
2.Copier Initial
3.Preset button
4.EKC
5.Job memory
6.Paper type
7.Panel contrast
8.Key ope. Data
9.Weekly timer
10.Touch panel adj

[Key operator menu screen 2/2]



System/copier setting menu

11.Paper size
12.Power Save
13.Memory SW
14.List Print
15.KRDS host

5. Select the item to be set.
   The setting screen for the selected item will appear. (When a more detailed menu screen appears, select the applicable item from the setting screen.)
6. Make the necessary settings using the respective setting screens.
7. Press the Return key to return to the operator menu screen.
8. Turn the power switch OFF to cancel the key operator mode.

*1: Set the password in advance using the 25 mode.
If the password is set to “0000”, the password input screen will not appear. Instead, the key operator menu screen will be displayed directly.

Reference:

- The selected key is displayed in reverse.
- Unless otherwise specified, the display returns to the previous screen if the OK key is pressed.
- If KRDS is not connected, “15. KRDS Host” is displayed shaded indicating that this item cannot be selected.
- When a FAX or printer is installed, a screen of selecting a Copier, FAX or Printer will be displayed first.

[2] System initial setting

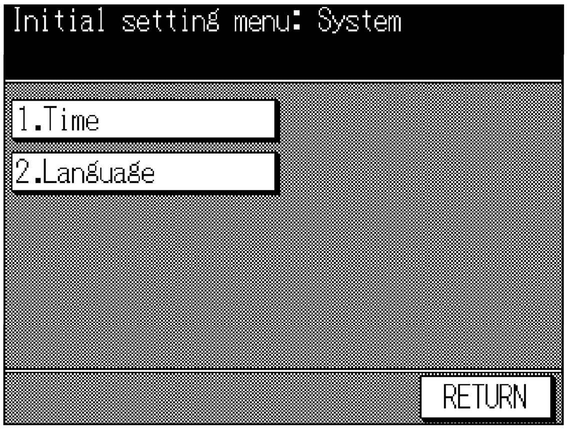
The initial conditions, when the power switch is turned ON or an auto reset takes place, are set.

1. Setting method

a. Enter the key operator mode.

b. Select the [1. System] from the key operator menu screen.

△3 **[System initial setting menu screen]**



c. Select the item to be adjusted from the System initial setting menu screen.

d. Press the OK key after adjusting the selected item, this will cause the System initial setting menu screen to re-appear.

e. Repeat Steps c and d to adjust the necessary items.

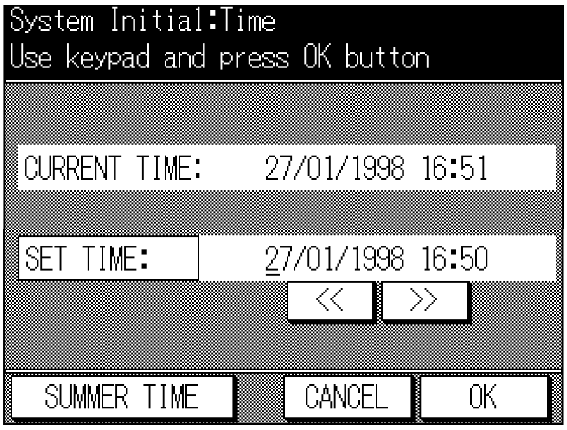
f. Press the RETURN key to return to the Key operator menu screen.

Caution: When the “Auto job memory recall” in the memory switch is ON, the settings of the initial state menu are ignored.

2. Date&time setting

This mode is to set the date & time and adjust for summertime.

[Date&time setting mode screen]



System Initial:Time
Use keypad and press OK button

CURRENT TIME: 27/01/1998 16:51

SET TIME: 27/01/1998 16:50

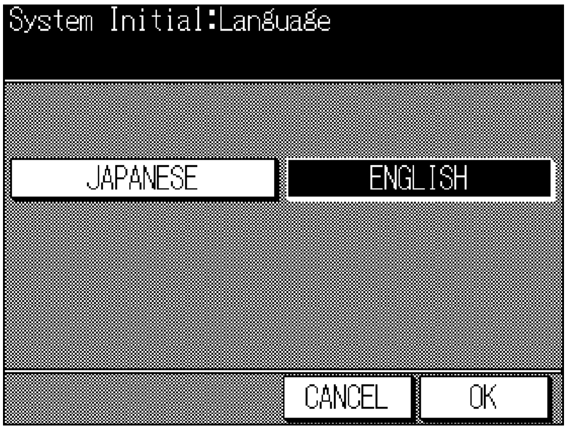
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 1.System Initial key.
3	**[System initial setting menu screen]** Press the 1.Time key.
4	**[Date&time setting mode screen]** Use the << and >> keys and the copy quantity setting buttons to enter the setting date&time.
5	Set the summertime. The current time is put the specific time forward by pressing the SUMMER TIME key. The current time is put the specific time backward by pressing the selected SUMMER TIME key again. (See *1)
6	Press the OK key to complete the setting.

*1: It is possible to switch over with Softwear SW 10 in 25 mode. Default: 60 min.

3. Language selection △3

This mode is to select the language used in operating the machine.

[Language selection mode screen]



Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 1.System Initial key.
3	**[System initial setting menu screen]** Press the 2.Language key.
4	**[Language selection mode screen]** Press one language key you desire to use for the operation.
5	Press the OK key to complete the setting.

[3] Copier initial setting

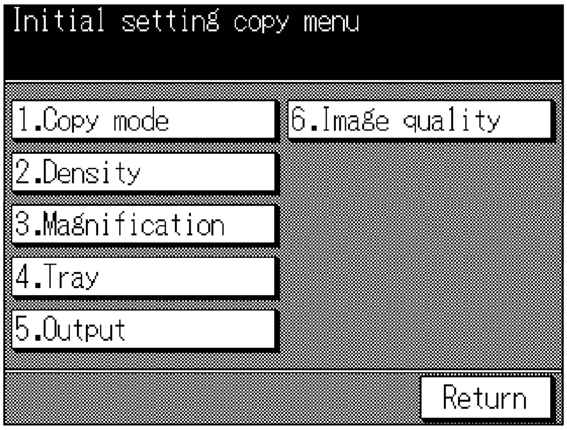
This mode is to set the initial conditions of the copier.

1. Setting method

a. Enter the key operator mode.

b. Select the [2. Copier Initial] key from the key operator menu screen.

[Copier initial setting menu screen]


Initial setting copy menu
1.Copy mode
6.Image quality
2.Density
3.Magnification
4.Tray
5.Output
Return

c. Select the item to be adjusted from the Copier initial setting menu screen.

d. Press the OK key after adjusting a selected item, this will cause the Copier initial setting menu screen to re-appear.

e. Repeat Steps c and d to adjust the necessary items.

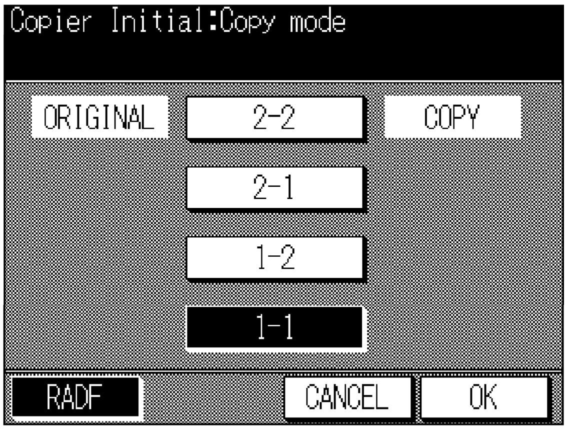
f. Press the Return key to return to the Key operator menu screen.

Caution: When the “Auto job memory recall” in the memory switch is ON, the settings of the initial state menu are ignored.

2. Copy mode setting

This is the mode to set the copy mode state that is selected when the power switch is turned ON or an auto reset takes place.

[Copy mode setting screen]


Copier Initial:Copy mode
ORIGINAL
COPY
2-2
2-1
1-2
1-1
RADF
CANCEL
OK

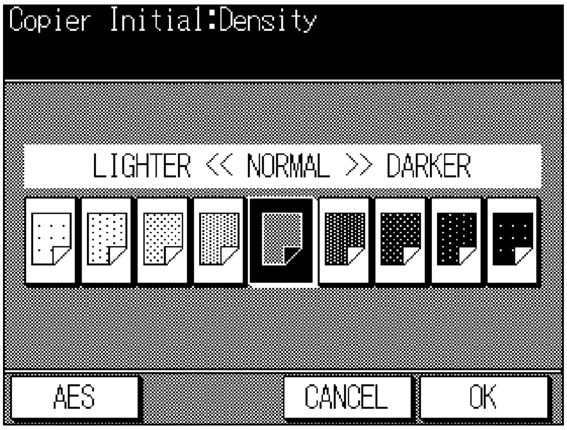
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 1.Copy mode key.
4	**[Copy mode setting screen]** Press the desired copy mode key.
5	Press the OK key to complete the setting.

Caution: If the two-sided original/two-sided copy mode, the two-sided original/one-sided copy mode, or one-sided original/two-sided copy mode is selected, the RADF will be forcibly selected.

3. Copy density setting

Set the copy density state to be activated when the power switch is turned ON or an auto reset takes place.

[Copy density setting screen]



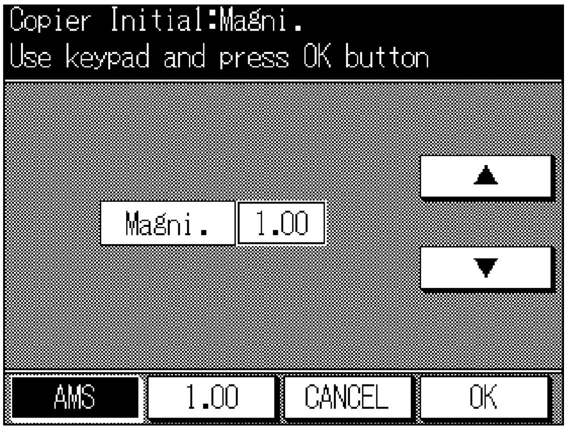
Copier Initial:Density

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key.
3	**[Copier initial setting menu screen]** Press the 2.Density key.
4	**[Copy density setting screen]** Press the desired copy density level key. Press AES key if you wish to select the automatic copy density.
5	Press the OK key to complete the setting.

4. Magnification setting

Set the magnification state to be activated when the power switch is turned ON or an auto reset takes place.

[Magnification setting screen]



Copier Initial:Magni.
Use keypad and press OK button

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 2.Magnification key.
4	**[Magnification setting screen]** Enter the desired magnification (3 digits) using the copy quantity setting buttons or ▲ and ▼ keys. Setting range: 0.25 to 4.00 (See *1) Press the AMS key if you wish to select the automatic magnification function. Press the 1.00 key if you wish to return to 100 % magnification.
5	Press the OK key to finalize the entered magnification and to complete the setting.

*1:

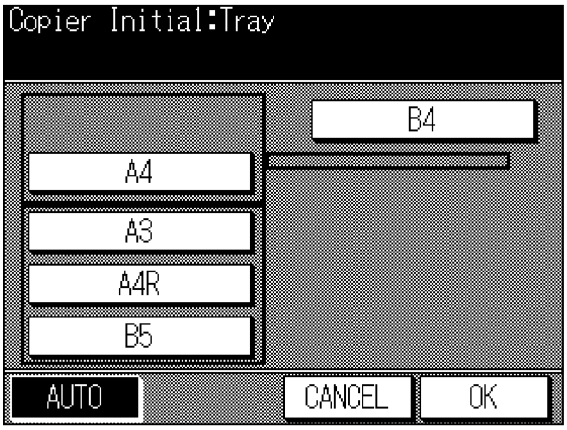
- The decimal point is fixed, so there is no need to input it.
- The displayed number will shift to the left, and the entered number will be in the lowest position.
- If the entered number is less than 0.25, the magnification will be set to 0.25. If the entered number is more than 4.00, the magnification will be set to 4.00.

Caution: When [AUTO] is selected in the initial setting for Paper tray setting, the magnification entered in this screen will be invalid and the magnification will be 1.00.

5. Paper tray setting

Set the tray to be selected when the power switch turns ON or an auto reset takes place.

[Paper tray setting screen]



Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 4.Tray key.
4	**[Paper tray setting screen]** Press the desired paper tray key as the priority tray. Press the AUTO key if you wish to select the automatic paper tray selection function.
5	Press the OK key to complete the setting.

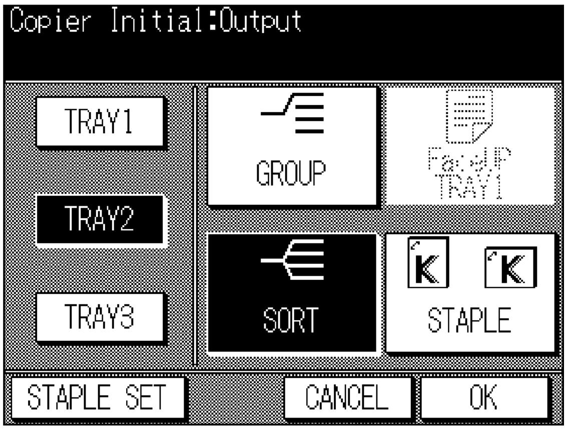
Caution:

- This setting is used to select a “Tray No.” The tray No. selected in the initial state will remain unchanged, even if the size of paper in this tray is changed.
- When the [AUTO] is selected, the tray of priority can not be selected simultaneously.
- When the [AUTO] is selected, the contents of magnification initial setting are invalid and 1.00 mode is automatically selected.

6. Output mode setting

Set the state of the finisher (output) to be selected when the power switch is turned ON or an auto reset takes place.

[Output mode setting screen](when finisher is installed)



Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 5.Output key.
4	**[Output mode setting screen]** Press the desired output tray.
5	Select the output mode. GROUP : Group mode FaceUP : Face up mode SORT : Sort mode STAPLE : Staple mode
6	When the Staple mode is selected, press the STAPLE SET key and set staple mode.
7	Press the OK key to complete the setting.

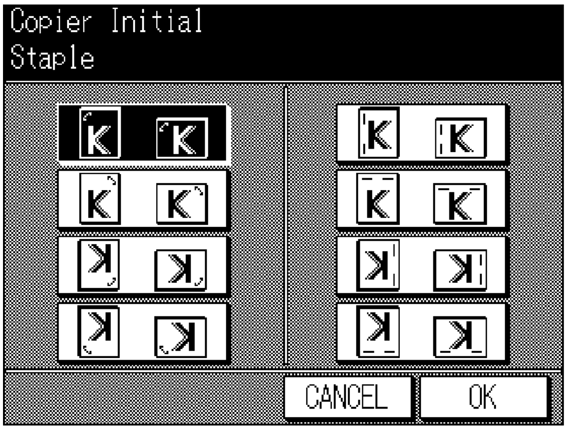
Caution:

- The selected key is displayed in reverse.
- Whenever the Staple mode is selected, the Sort mode is automatically selected.
- A copier that does not have a finisher can be selected ROTATION, GROUP, FaceUP and SORT.

- **Staple mode setting**

This mode is to select types of staple setting (1-position or 2-position) and a position at which the staple is inserted.

[Staple setting screen]

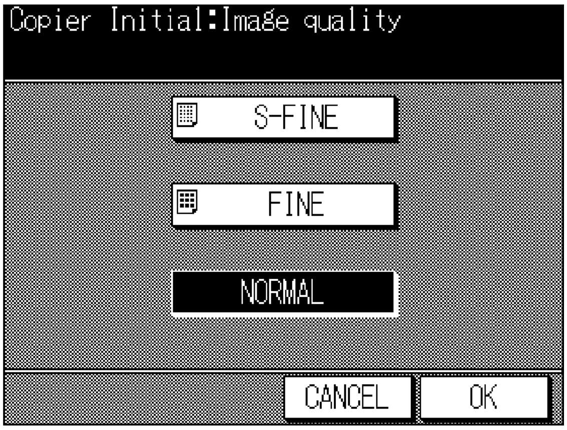


Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 5.Output key.
4	**[Output mode setting screen]** Press the STAPLE SET key.
5	**[Staple setting screen]** Press the desired staple type and position.
6	Press the OK key to complete the setting.

7. Image quality Setting

Set the image quality to be selected when the power switch is turned ON or an auto reset takes place.

[Image quality setting screen]



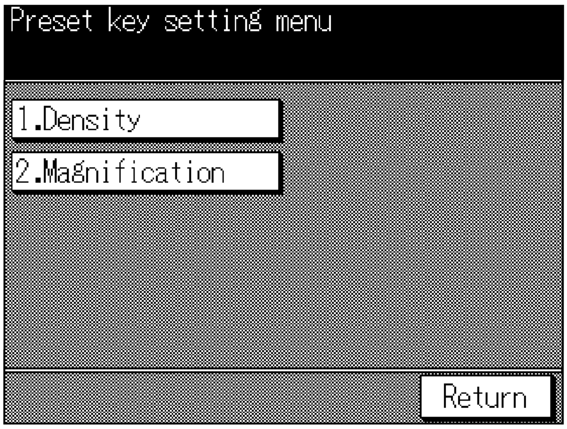
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 2.Copier Initial key .
3	**[Copier initial setting menu screen]** Press the 6.Image quality key.
4	**[Image quality setting screen]** Press the desired image quality setting mode.
5	Press the OK key to complete the setting.

[4] User-set setting menu

This mode is to adjust user-set setting for copy magnification and density.

1. Setting method

a. Enter the key operator mode.
b. Press the [3. Preset button] on the Key operator menu screen.
[User-set setting menu screen]

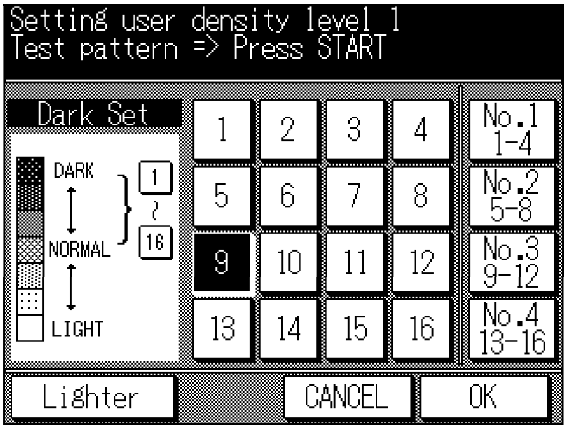

Preset key setting menu
1.Density
2.Magnification
Return

c. Select the item to be adjusted from the User-set setting menu screen.
d. Press the [USERSET] to be set ([USERSET 1] or [USERSET 2]).
e. After setting the selected item, press the OK key to return to the User-set setting menu screen.
f. Repeat steps c to e to set the necessary item.
g. Press the Return key to return to the Key operator menu screen.

2. User-set density setting

This mode is to set the copy density levels for user-set.

[User-set density setting screen (Ex. Dark Set)]


Setting user density level 1
Test pattern => Press START
Dark Set
DARK
NORMAL
LIGHT
1
~
16
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
No.1 1-4
No.2 5-8
No.3 9-12
No.4 13-16
Lighter
CANCEL
OK

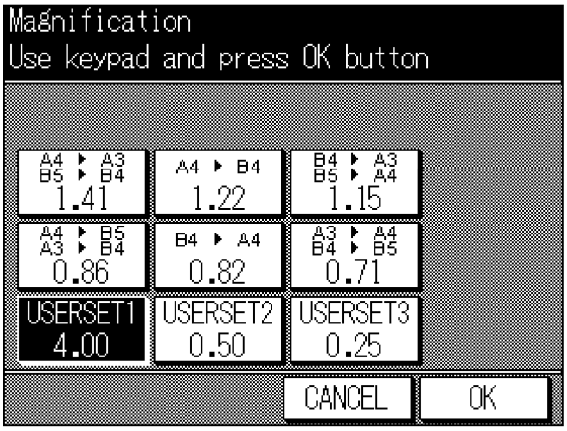
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 3.Preset button key .
3	**[User-set setting menu screen]** Press the 1.Density key.
4	**[User-set density button setting screen]** Press the desired user-set density button to be changed.
5	**[User-set density setting screen]** Press the Darker or Lighter key to select the desired screen to be set.
6	Enter the density level using the 1 - 16 keys.
7	Press the OK key.
8	Press the Return key to complete the setting.

Reference: When pressing the No.1 1-4, No.2 5-8, No.3 9-12, or No.4 13-16 key, the sample images for density pattern is output.

3. User-set magnification setting

This mode is to set the magnification ratios for user-sets.

[User-set magnification setting screen]



Magnification
Use keypad and press OK button

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 3.Preset button key .
3	**[User-set setting menu screen]** Press the 2.Magnification key.
4	**[User-set magnification setting screen]** Select the desired [USERSET] to be set ([USERSET 1], [USERSET 2], or [USERSET 3]).
5	Enter the number of desired ratio (3 digits) using the copy quantity setting buttons.
6	Setting range: 0.25-4.00 (See *1) Press the OK key.
7	Press the Return key to complete the setting.

*1:

- The decimal point is fixed, so there is no need to input it.
- The displayed number will shift to the left, and the entered number will be in the lowest position.
- If the input number is less than 0.25, the magnification will be set to 0.25. If the input number is more than 4.00, the magnification will be set to 4.00.

[5] EKC (Electronic Key Counter) setting

This machine is equipped with the EKC (electronic key counter) function which a user or a group can set a password to control the copy quantity.

E.K.C. is divided into two modes, user and operator mode.

a. User mode

The normal copy operation is performed in the E.K.C. selection state.

b. Key operator mode

The following setting are performed in order to control copies in the E.K.C. mode.

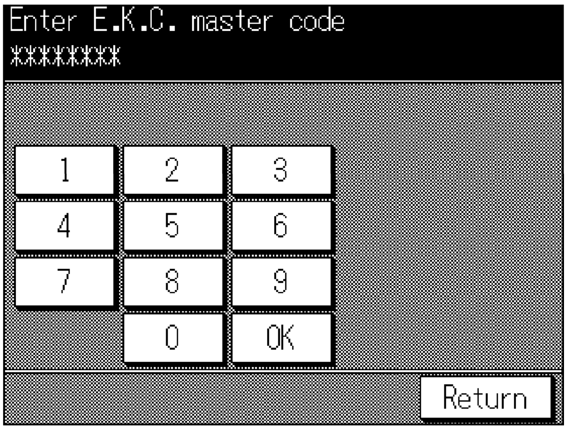
(1) Password setting (Up to 256 types can be registered.)
(2) Count Limit Setting
(3) Count Reset
(4) EKC On/Off Setting
(5) Copy limit reached effect

1. EKC (Electronic Key Counter) master key code input

a. Turn the power switch ON while pressing the HELP button to enter the Key operator mode.

b. Select the [4. EKC] from the Key operator menu screen. The EKC master key code input screen appears.

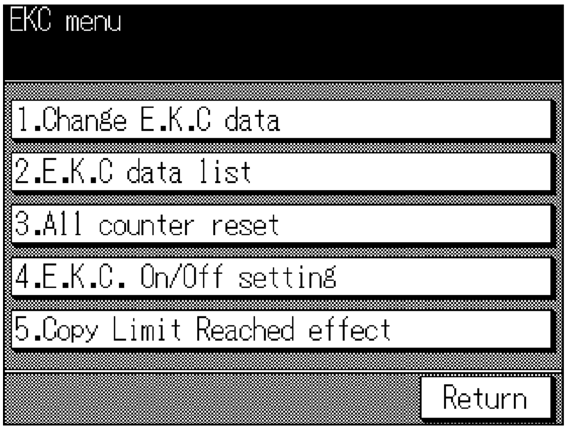
[EKC master key code input screen]



Enter E.K.C. master code
****

c. Using the numeric key on the screen, enter the 8-digit master key code and press the OK key. (Set the EKC Master Key Code in advance using the 25 mode.) The EKC setting menu screen will appear.

[EKC setting menu screen]


EKC menu
1.Change E.K.C data
2.E.K.C data list
3.All counter reset
4.E.K.C. On/Off setting
5.Copy Limit Reached effect
Return

d. Select the item to be adjusted from the EKC setting menu.

e. When the selected item is set, press the OK key to return to the EKC setting menu screen. If the OK key does not appear, press the Return key.

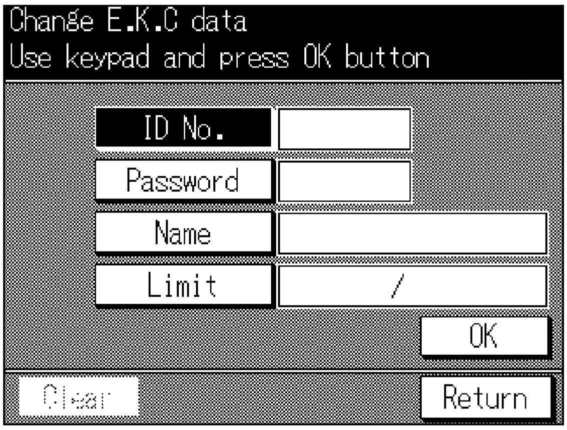
f. Repeat steps d and e to set the necessary items.

g. Press the Return key to return to the key operator menu screen.

2. EKC data registration

This mode is to set each data of the EKC; ID number, password, name, and limit value.

[Password setting screen]


Change E.K.C data
Use keypad and press OK button
ID No.
Password
Name
Limit
/
OK
Clear
Return

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key.
3	**[EKC setting menu screen]** Press the 1.Change E.K.C data key.
4	**[EKC data registration screen]** Enter ID No. (3-digit number). ID No. can be rewritten.
5	Press the Password key to input a password (5-digits number). (See *1)
6	Press the Name button to input a name. (See *2)
7	Enter a limit value. (See *3)
8	Press the OK key to finalize them.
9	Press the Return key to complete the setting.

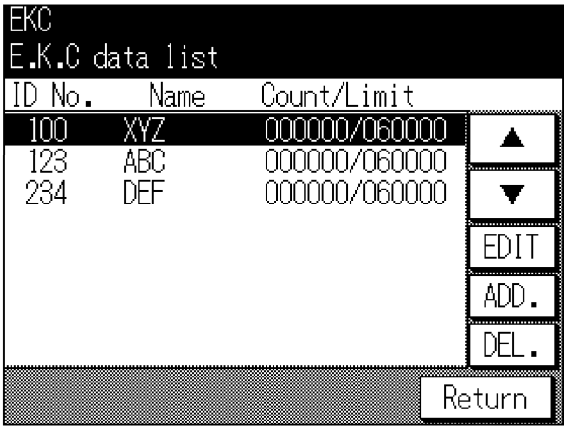
When pressing the OK key, check the duplication of the input password. If the same password has been already used, the message for check will appear.
Press the No key to register in duplication. Press the Yes key to return to the EKC setting menu screen. After pressing the Yes or No key, press the OK key to finalize it.

*1: A password cannot be set to all zero (00000).
All passwords are set to all zero before the machine leaves the factory.
*2: See "[1] Job memory write" in the "JOB MEMORY" concerning the input method of the mane.
*3: When the limit value is "0", the Copy limit reached effect can not be operated.

3. EKC data list

This mode is to confirm the data of the EKC and to add, change or delete data.

[EKC data list screen]


EKC
E.K.C data list

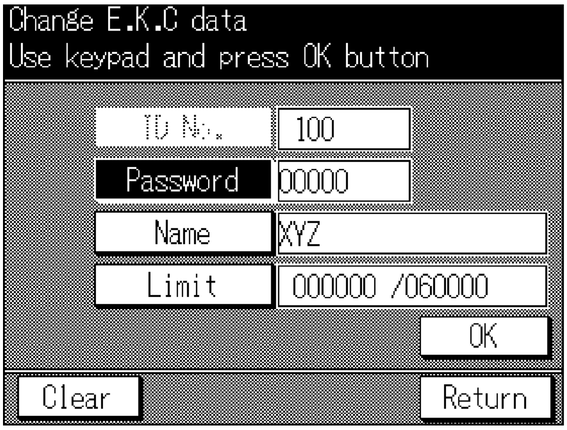
ID No.	Name	Count/Limit
100	XYZ	000000/060000
123	ABC	000000/060000
234	DEF	000000/060000

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key .
3	**[EKC setting menu screen]** Press the 2.E.K.C data list key.
4	**[EKC data list screen]** Select ID by using ▲ key or ▼ key and press the following keys. EDIT : The setting data can be changed on the password setting screen. ADD. : A new ID can be added on the password setting screen. DEL. : The screen for confirming the data will appear, and select the Yes or No and then press the OK key.
5	Press the Return key to finalize the ID and to complete the setting.

- **EKC data change**

This mode is to change the data of the EKC; ID number, password, name, and limit value.

[EKC data change screen]



Change E.K.C data
Use keypad and press OK button

ID No. 100
Password 00000
Name XYZ
Limit 000000 /060000

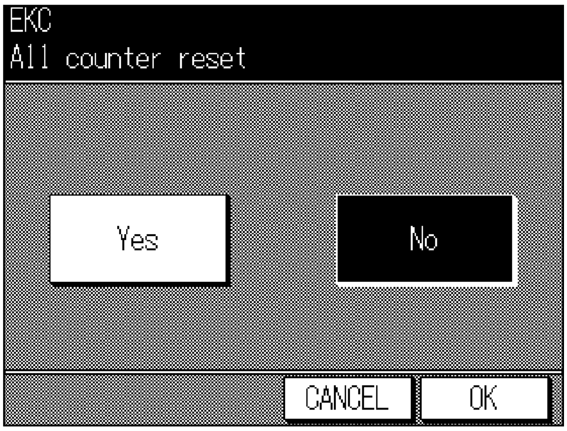
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key.
3	**[EKC setting menu screen]** Press the 2.E.K.C data list key.
4	**[EKC data list screen]** Press the EDIT key.
5	**[EKC data change screen]** ID No. can not be rewritten.
6	Press the Password key to input the password.
7	Press the Name key to input the name.
8	Press the Limit key to input the limit value.
9	Press the OK key to finalize them and complete the setting.

Reference: The EKC count is reset to zero by pressing the Clear key.

4. EKC all counters reset setting

This mode is to reset all of the EKC counters.

[EKC all counters reset screen]



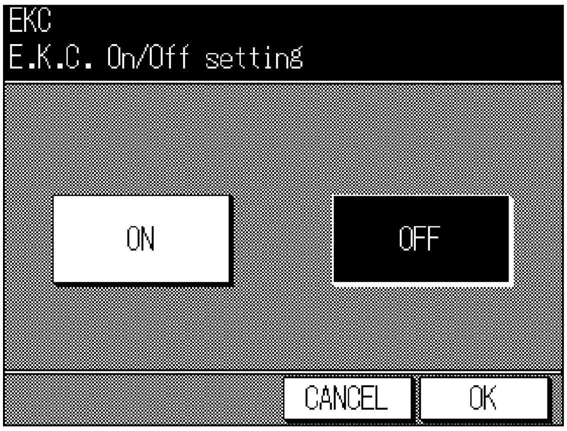
EKC
All counter reset

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key .
3	**[EKC setting menu screen]** Press the 3.All counter reset key.
4	**[EKC all counters reset screen]** Yes : Press this key to reset all EKC counters. No : Press this key not to reset EKC count.
5	Press the OK key to finalize it.
6	Press the Return key to complete the setting.

5. EKC On/Off setting

This mode selects whether to use the EKC function or not.

[EKC On/Off setting screen]

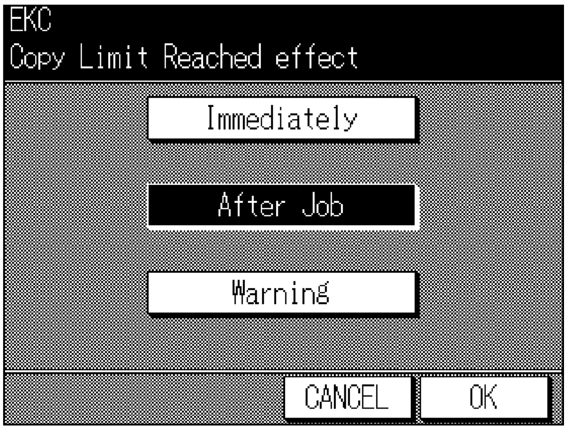


Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key .
3	**[EKC setting menu screen]** Press the 4.E.K.C. On/Off setting key.
4	**[EKC On/Off setting screen]** ON : Press this key to use the EKC function. OFF : Press this key not to use the EKC function.
5	Press the OK key to finalize it.
6	Press the Return key to complete the setting.

6. EKC limit reached effect setting

This mode is to set whether the copier stops or not when the copy limit is reached.

[EKC limit reached effect setting screen]



Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 4.EKC key .
3	**[EKC setting menu screen]** Press the 5.Copy Limit Reached effect key.
4	**[EKC limit reached effect setting screen]** Immediately : Press this key to stop the machine when the copy count reaches the limit. After Job : Press this key to stop the machine after the current copying job is completed. Warning : Press this key to display a warning message when the copy count reaches the limit.
5	Press the OK key to finalize it.
6	Press the Return key to complete the setting.

[6] Job memory (lock/delete) setting

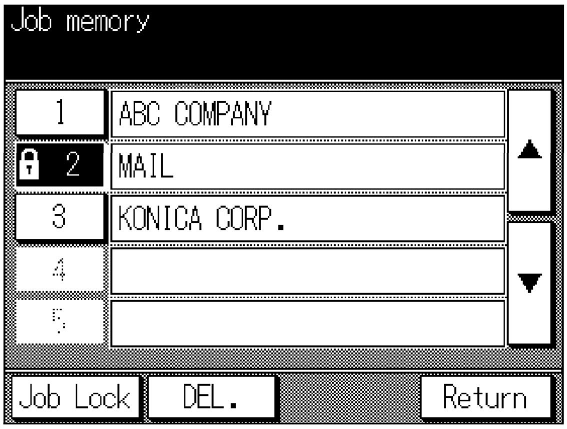
This mode is to lock/delete the job contents that have been registered.

1. Setting method

a. Enter the key operator mode.

b. Select the [5. Job memory] on the key operator menu screen.

[Job memory lock/delete menu screen]


Job memory
1 ABC COMPANY
2 MAIL
3 KONICA CORP.
4
5
▲
▼
Job Lock
DEL.
Return

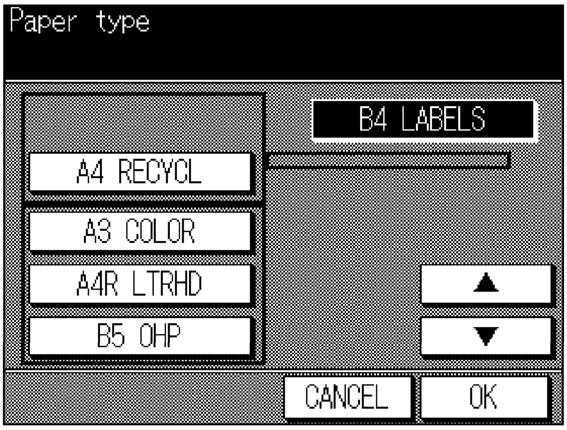
c. Select the item No. to be set on the Job memory lock/delete menu screen. Press the Job Lock key to lock the selected job. Press the Job Lock key again to unlock it. Press the DEL. key to delete the selected job.

d. Press the Return key to return to the key operator menu screen.

[7] Paper type setting

This mode is to set a specific paper type for each tray.

[Paper type setting screen]


Paper type
B4 LABELS
A4 RECYCL
A3 COLOR
A4R LTRHD
B5 OHP
▲
▼
CANCEL
OK

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 6.Paper type key.
3	**[Paper type setting screen]** Select the paper tray in which the paper type is set.
4	Press the ▼ key or ▲ key to select paper type. (See *1)
5	Repeat steps 3 and 4 to set paper type in another tray.
6	Press the OK key to complete the setting.

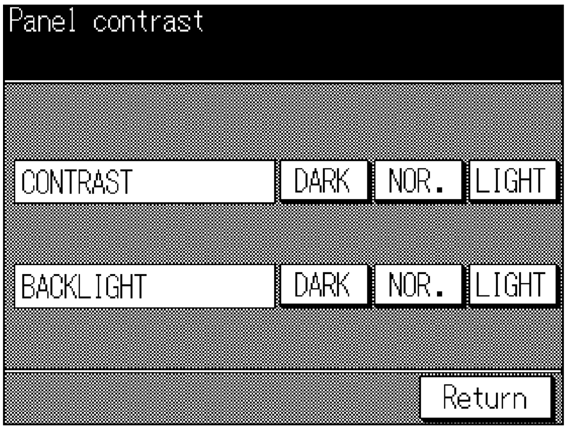
*1: Press the ▼ key or ▲ key to change the paper type. Paper types can be selected from the following items.

RECYCL
COLOR
LTRHD
OHP
LABELS
INVOIC
LEGAL

[8] LCD Panel Contrast Adjustment

This mode is to adjust the LCD panel contrast.

[LCD panel contrast adjustment screen]



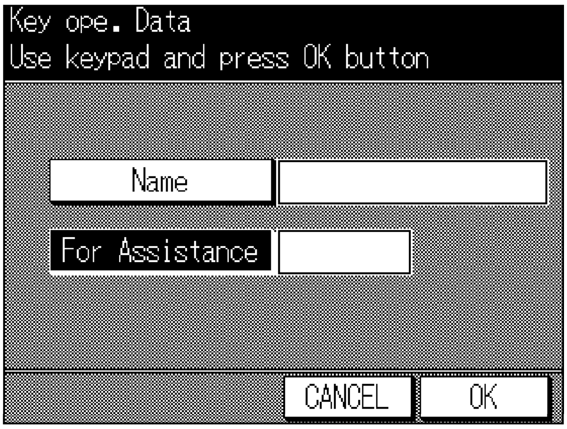
Panel contrast

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 7.Panel contrast key.
3	**[LCD panel contrast adjustment screen]** Adjust to the desired contrast of the panel and back light using the DARK and LIGHT keys. The normal contrast is selected by pressing NOR. key.
4	Press the Return key to finalize the contrast and complete the setting.

[9] Key operator data registration

This mode is to enter the name and extension number of the key operator of which the extension number is displayed on the Help screen from the basic screen.

[Key operator data registration screen]



Key ope. Data
Use keypad and press OK button

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 8.Key ope. Data key.
3	**[Key operator data registration screen]** Press the Name key to cause "Name input screen" to appear and enter the operator's name.
4	Press the For Assistance key to enter a 5-digits extension No. using the copy quantity setting buttons. (* See 1)
5	Press the OK key to finalize the extension No.
6	Press the Return key to complete the setting.

*1: See "[1] Job memory write" in the "JOB MEMORY" concerning the input method of the mane.

[10] Weekly timer Setting

Weekly timer is a function to control the copying machine using the following operations by the key operator.

- Timer setting enables to set ON/OFF time individually (from Monday to Sunday) or collectively.
- Timer action on/off setting enables to set the timer operation day by each day or week.
- Basically, set to turn ON/OFF the timer once a day. However, it can be turned OFF/ON once when it is ON. (Lunch time OFF setting)
- During the copy machine OFF caused by the timer, it can be operated if the power saver key is pressed and the password is entered, provided that the password has been designated. (Forcible ON)

The weekly timer can be used by entering W.T. master key code. The above operations become disabled without entering.

Outline of Weekly timer setting procedures

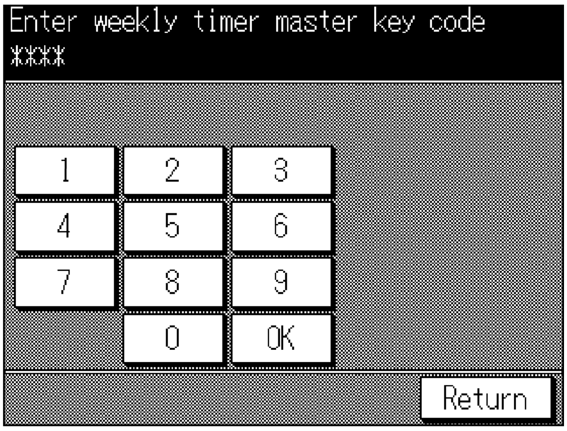
1. Enter the weekly timer setting mode.
2. Weekly timer on/off setting: It determines whether or not to use the weekly timer function.
3. Timer setting: It determines ON/OFF time of the copier.
   - Individual: Determines seven ON/OFF times for each week (from Monday to Sunday).
4. Timer action on/off setting: It designates the timer operation day.
   - Individual: Determines the operation days for each day using the calendar.
   - Collective: Determines the seven operation days for each week (from Monday to Sunday).
5. Lunch time OFF setting: It determines OFF time for the lunch time when the timer setting is used.
6. Password setting for off-time using: It designates the password if the copier is used out of the specified time.

1. Weekly timer setting mode

a. Enter the Key operator mode.

b. Select the [9. Weekly timer] from the Key operator menu screen.
The master key code input screen will appear. (*See 1)

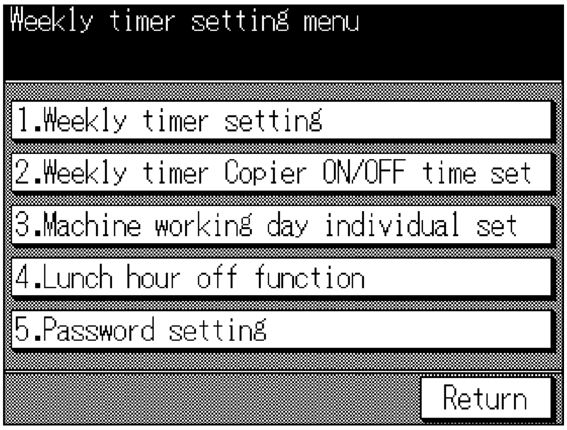
[Weekly timer master key code input screen]



Enter weekly timer master key code
****

c. Input a 4-digit master key code using the numeric key on the screen.

[Weekly timer setting menu screen]



Weekly timer setting menu
1.Weekly timer setting
2.Weekly timer Copier ON/OFF time set
3.Machine working day individual set
4.Lunch hour off function
5.Password setting
Return

d. Select the item to be adjusted from the Weekly timer setting menu screen.

e. After the selected items is adjusted, the Weekly timer setting menu screen re-appear.

f. Repeat steps d. and e. to set the necessary items.

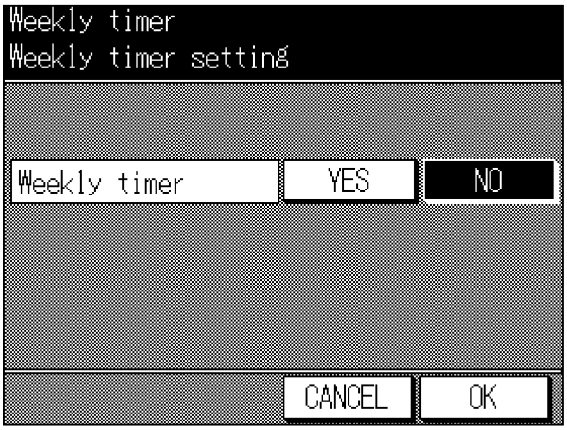
g. Press the Return key and return to the Key operator menu screen.

*1: Set the Master code in advance in the 25 mode.
When setting the password to "0000", the screen is directly displayed the weekly timer setting menu screen without displaying the password input screen.

2. Weekly timer ON/OFF setting

This mode is to set whether or not to use the Weekly timer function.

[Weekly timer ON/OFF setting screen]



Weekly timer
Weekly timer setting

Weekly timer: YES / NO

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 9.Weekly timer key.
3	**[Weekly timer setting menu screen]** Press the 1.Weekly timer setting key.
4	**[Weekly timer on/off setting screen]** Select the desired function. YES : Press this key to use the Weekly timer. (Leave the main power switch ON.) NO : Press this key not to use the Weekly timer. (Turn the power switch ON/OFF by the main switch.)
5	Press the OK key to complete the setting.

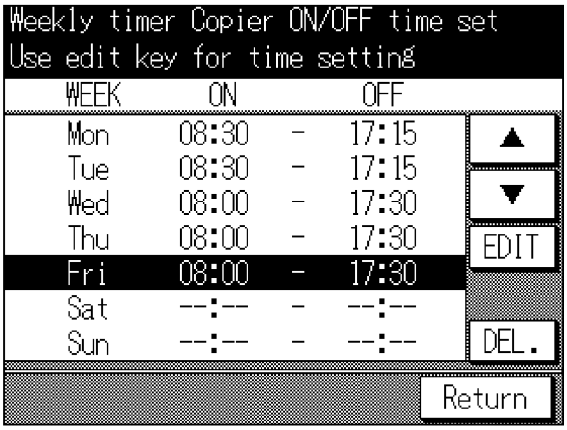
Reference: The NO is selected prior to machines leaving the factory.

3. Timer Setting

- Timer Setting

This mode is to set the ON/OFF-time of the power of the copier by day of the week using the Weekly timer.

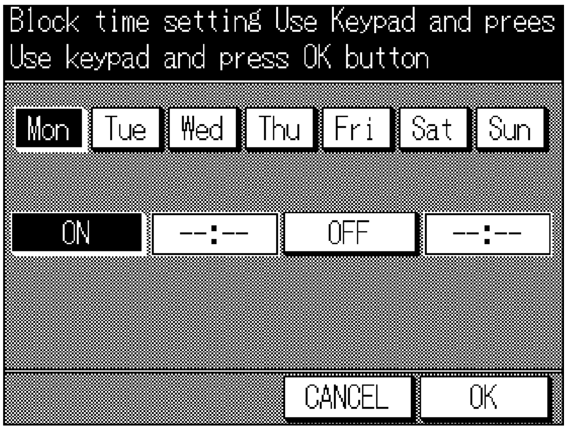
[Weekly timer setting screen]



Weekly timer Copier ON/OFF time set
Use edit key for time setting

WEEK	ON		OFF
Mon	08:30	-	17:15
Tue	08:30	-	17:15
Wed	08:00	-	17:30
Thu	08:00	-	17:30
Fri	08:00	-	17:30
Sat	--:--	-	--:--
Sun	--:--	-	--:--

[Timer setting screen by day of the week]



Block time setting Use Keypad and prees
Use keypad and press OK button

ON --:-- OFF --:--

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the `9.Weekly timer` key.
3	**[Weekly timer setting menu screen]** Press the `2.Weekly timer Copier ON/OFF time set` key.
4	**[Weekly timer setting screen]** Press the `EDIT` key.
5	**[Timer setting screen by day of the week]** Press the day (from Monday to Sunday) key you desire to set. The selected day is displayed in reverse. It is cleared by pressing again. The multiple day can be set at the same time.
6	Set ON/OFF time. Press the `ON` or `OFF` key to be displayed in reverse and enter the time using the copy quantity setting buttons. `ON` : Press this key to set the time to turn the copier ON. `OFF` : Press this key to set the time to turn the copier OFF.
7	Press the `OK` key to complete the setting.

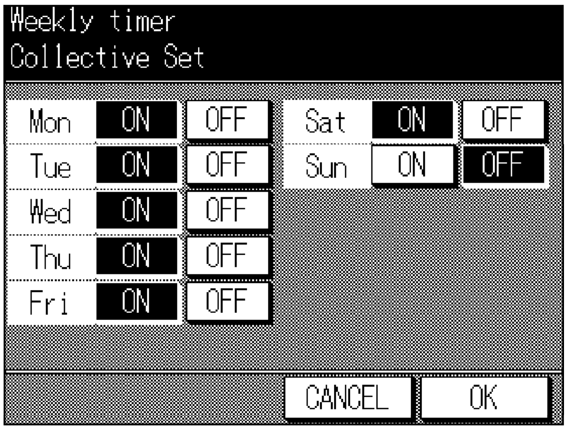
Caution:

- When deleting the setting time, select the day to be deleted with the weekly timer setting screen and press the `DEL.` key.
- This setting is actually enabled/disabled by the [Operation day setting].
- If the setting of the ON time and OFF time is the same, the power will not go ON. For example, if the setting remains 00:00-00:00, the power will not go on, even on the day set by [Operation day setting].

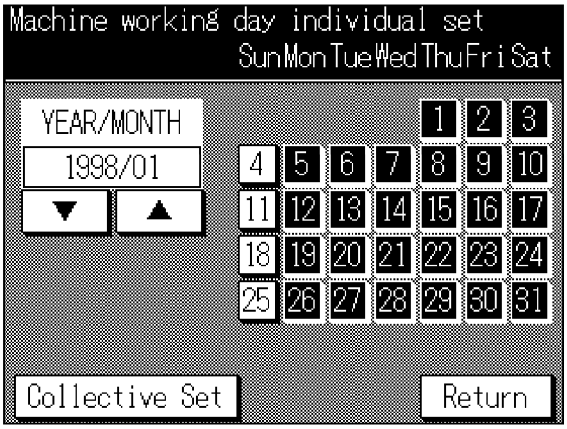
4. Timer action ON/OFF setting

This mode is to set whether the power of the copier is actually turned ON at the setting time individually while referring to the calendar.

[Timer action ON/OFF setting screen]


Weekly timer
Collective Set
Mon ON OFF
Tue ON OFF
Wed ON OFF
Thu ON OFF
Fri ON OFF
Sat ON OFF
Sun ON OFF
CANCEL
OK

[Timer action ON/OFF setting by day of the week screen]


Machine working day individual set
Sun Mon Tue Wed Thu Fri Sat
YEAR/MONTH
1998/01
▼
▲
1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31
Collective Set
Return

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 9.Weekly timer key.
3	**[Weekly timer setting menu screen]** Press the 3.Machine working day individual set key.
4	**[Timer action ON/OFF setting screen]** Press the Collective Set key.
5	**[Timer action ON/OFF setting by day of the week screen]** Set the timer operation by day from Monday to Sunday. ON : Timer is operated ON this day. OFF : Timer is not operated on this day. (Power is OFF all day). The selected key is displayed in reverse.
6	Press the OK key to return to the Timer action ON/OFF setting screen.
7	**[Timer action ON/OFF setting screen]** The day that has been set to ON on the timer action ON/OFF setting by day of the week screen is displayed in reverse. When changing the day, switch the year/month with ▲ or ▼ key and press the day. Every pressing the key switches timer operation ON/OFF.
8	Press the Return key to complete the setting.

Reference:

- Calendar setting is performed between the years 1997-2020.
- Copiers are set with Monday - Saturday ON and Sunday OFF prior to leaving the factory.

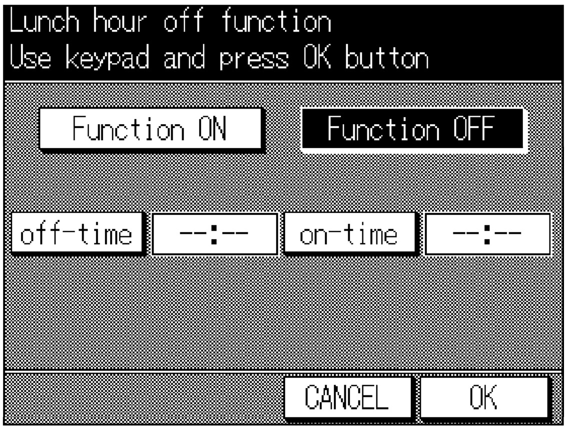
Caution: The changed setting contents on the Timer action ON/OFF setting by day of the week will be automatically effective in the Timer action ON/OFF setting.

5. Lunch time OFF setting

This function is used to set the Lunch Time OFF function OFF or ON, and to set the time.

The method of setting the time is the same as that of the Timer setting.

[Lunch time OFF setting screen]



Lunch hour off function
Use keypad and press OK button

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 9.Weekly timer key.
3	**[Weekly timer setting menu screen]** Press the 4.Lunch hour off function key.
4	**[Lunch time off setting screen]** Select whether or not to set the function in use. Press the Function OFF or Function ON key to be displayed in reverse. Function ON :To use the Lunch time OFF function. Function OFF :Not to use the Lunch time OFF function. The time can not be set.
5	If the Function ON key is pressed in step 4, set the OFF time and restart operation time. Enter the time using the copy quantity setting buttons.
6	Press the OK key to complete the setting.

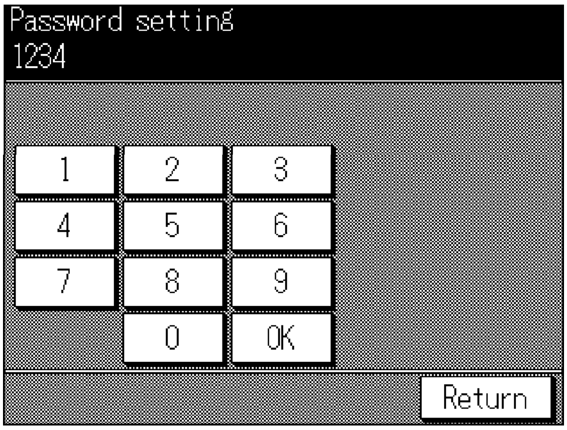
Reference:

- The Lunch Time OFF function will operate on days when the power is set to be on, bearing no relation to day and date. It will not function when the copier is designated to be off all day.
- The `Function OFF` key is selected prior to leaving the factory.

6. Password setting for use out of hours

A password is necessary when the machine is used after it has been turned OFF by the weekly timer. This mode is to set the password. This mode is to set the password.

[Password setting for use out of hours screen]



Password setting
1234

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the `9.Weekly timer` key.
3	**[Weekly timer setting menu screen]** Press the `5.Password setting` key.
4	**[Password setting for use out of hours screen]** Input a password 4 digit using the copy quantity setting buttons.
5	Press the `OK` key to complete the setting.

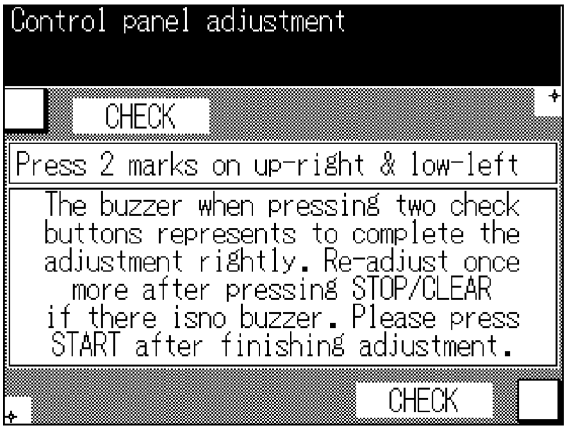
Reference:

- The copier can be operated without a password if the password for use out of hours is set at "0000" by pressing the POWER SAVER button, even if the power is cut by the weekly timer.
- The password is set at "0000" prior to leaving the factory.

[11] Control panel adjustment

This mode is to correct the deviation of the screen from the control panel sensor.

[Control panel adjustment screen]



Press 2 marks on up-right & low-left

The buzzer when pressing two check buttons represents to complete the adjustment rightly. Re-adjust once more after pressing STOP/CLEAR if there isno buzzer. Please press START after finishing adjustment.

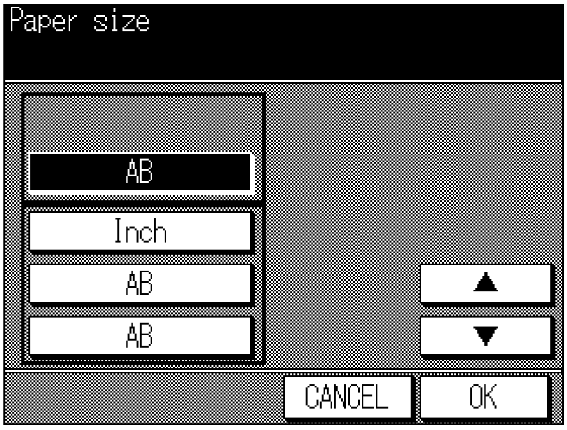
Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 10.Touch panel adj key.
3	**[Control panel adjustment screen]** Press the cross mark on the upper right lightly by a touch pen. (See *1)
4	Press the cross mark on the lower left lightly by a touch pen.
5	Press check buttons (☐) on the upper left and lower right to confirm the both buzzers sound. Repeat steps 3 and 4 if there is no buzzer.
6	Turn the power switch OFF to complete the setting.

*1: Something with a round tip which is made of resins is recommended as a touch pen.

[12] Tray size setting

This mode is to set the paper size detection method of the universal tray.

[Tray size setting screen]



Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 11.Paper size key.
3	**[Tray size setting screen]** Press the desired tray to be set to be displayed in reverse. Set the paper size detect method of the tray to AB series or inch series using the ▲ key and ▼ key.
4	Press the OK key to complete the setting.

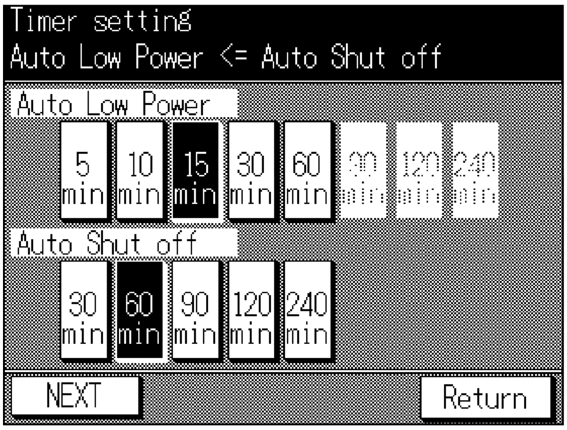
[13] Power save mode setting

This mode is to set the time for the power saving function "Auto low power" and " Auto shut off". "Auto shut off" has the higher effect of saving energy than " Auto low power".

1. Timer setting for power save mode

a. Set the time for till "Auto low power " or "Auto shut off" to activated. Times which can not be selected are displayed shaded.

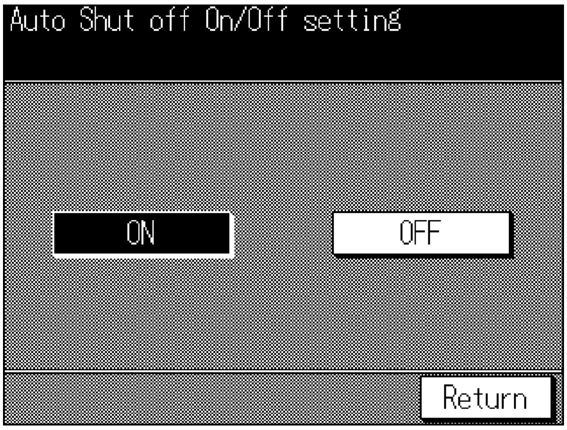
[Auto low power/Auto shut off timer setting screen]



Timer setting
Auto Low Power <= Auto Shut off

b. Press the NEXT key to set whether the auto shut off function is used or not.

[Auto shut off ON/OFF setting screen]



Auto Shut off On/Off setting

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 12.Power Save key.
3	**[Auto low power/Auto shut off timer setting screen]** Select the time for each mode. (See *1)
4	Press the NEXT key.
5	**[Auto shut off ON/OFF setting screen]** Set whether the auto shut off function is ON or OFF.
6	Press the Return key to complete the setting.

*1: If the same time is set in the "Auto low power" and "Auto shut off", the "Auto low power" does not function. The time setting of the "Auto low power" can not be longer than that of the "Auto shut off".

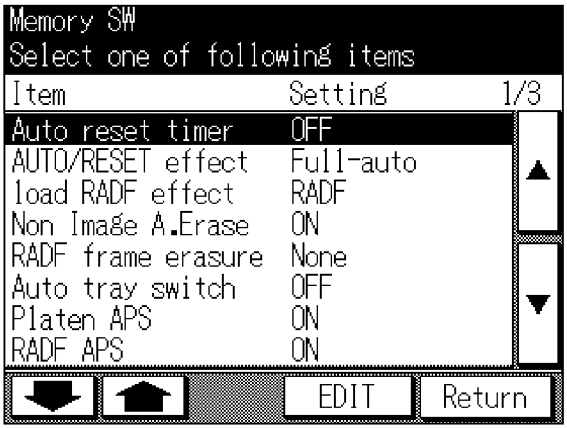
Caution:

- If the [OFF] is selected in the Auto shut off ON/OFF setting screen, the selection keys of the Auto shut off are displayed shaded and can not be selected in the Auto low power/Auto shut off timer setting screen.

[14] Memory Switch

Perform this setting to alter the diverse functions for the whole copier.

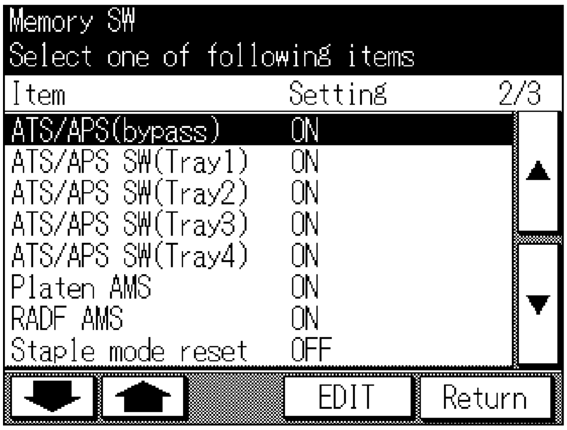
[Memory switch setting screen (1/3)]



Memory SW
Select one of following items

Item	Setting 1/3
Auto reset timer	OFF
AUTO/RESET effect	Full-auto
load RADF effect	RADF
Non Image A.Erase	ON
RADF frame erasure	None
Auto tray switch	OFF
Platen APS	ON
RADF APS	ON

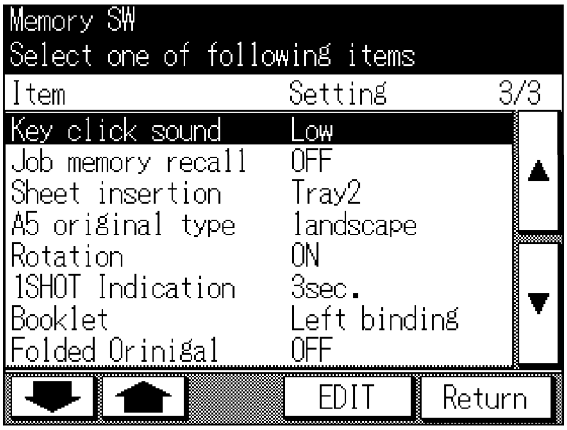
[Memory switch setting screen (2/3)]



Memory SW
Select one of following items

Item	Setting 2/3
ATS/APS(bypass)	ON
ATS/APS SW(Tray1)	ON
ATS/APS SW(Tray2)	ON
ATS/APS SW(Tray3)	ON
ATS/APS SW(Tray4)	ON
Platen AMS	ON
RADF AMS	ON
Staple mode reset	OFF

[Memory switch setting screen (3/3)]



Memory SW
Select one of following items

Item	Setting 3/3
Key click sound	Low
Job memory recall	OFF
Sheet insertion	Tray2
A5 original type	landscape
Rotation	ON
1SHOT Indication	3sec.
Booklet	Left binding
Folded Orinigal	OFF

1. Operation

(1) Selection of memory switch and setting items.
The memory switch setting screen can be switched by pressing the ⬆ key or ⬇ key.
Each time the ▲ key or ▼ key is pressed, the setting item can be switched.

(2) Alternation of setting contents
The setting contents of the selected memory switch setting item can be altered with the EDIT key.
Each time the EDIT key is pressed, the setting content can be switched and displayed in the setting box.
Press the Return key to complete the setting.

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 13.Memory SW key.
3	**[Memory switch setting screen]** Set each function. ▲ ▼ : To select the desired item to be set. The selected item is displayed in reverse. EDIT : To change the setting contents. Each time pressing the [EDIT] key, the setting content is switched.
4	Repeat the alternation of setting of the necessary function in step 3.
5	Press the Return key to complete the setting.

Reference: For the contents of the initial settings of copiers prior to leaving the factory, refer to [2. Function List of Settings and Alterations that can be made with the Memory Switch].

2. Function List of Settings and Alterations that can be made with the Memory Switches

Setting item/Description	Description of setting (Underlined items indicate the initial state.)
Auto reset timer Determines the time from the end of copying until the copier returns to the initial state.	• OFF • 30 sec. • 60 sec. • 90 sec. • 120 sec. • 150 sec. • 180 sec. • 210 sec. • 240 sec. • 270 sec. • 300 sec.
AUTO/RESET effect To set the condition of the Copy mode, Copy density, Magnification and Tray selection when the AUTO/RESET button is pressed.	• Full-auto ... Copy mode: One-sided original/two-sided copy, Copy density: Automatic, Magnification: 1.00 • Initial ... The conditions set as the initial setting
Load RADF effect To select the copier condition when originals are set in the RADF in the non-RADF mode with the RADF unit closed.	• Select RADF only • Select RADF + AUTO/RESET button
Non-image A. Erase To set if the outside of original is to be erased.	• Erase outside of original only in APS/AMS • Erase outside of original
RADF frame erasure To set the frame erasure area in frame erasure mode when making a copy using the RADF.	• 1 mm • 2 mm • 3 mm • 4 mm • 5 mm • OFF
Auto tray switch (ATS) If the copy paper runs out during a copy operation, and if there is a tray containing paper of the same size as the paper that was used during the copy operation, that tray is automatically selected, enabling the copy operation to resume. Automatic tray selection can be disabled by turning OFF switches of the ATS/APS No.1 to 4 for the tray, even when this switch is "ON".	• OFF • ON
Platen APS Paper of the same size as the original on the platen glass is automatically selected. (When variable magnification is used, a magnification that matches the paper size is selected.) Automatic tray selection can be disabled by turning OFF switches of the ATS/APS No.1 to 4 for the tray, even when this switch is "ON".	• OFF • ON
RADF APS This function automatically selects paper of the same size as the original in the RADF. When variable magnification is used, a magnification that matches the paper size is selected.) Automatic tray selection can be disabled by turning OFF switches of the ATS/APS No.1 to 4 for the tray, even when this switch is "ON".	• OFF • ON

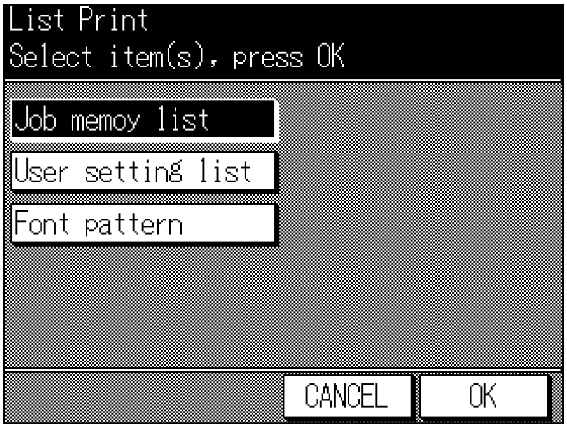
Setting item/Description	Description of setting (Underlined items indicate the initial state.)
ATS/APS (bypass) If this switch is OFF, automatic switch over to tray 1 will not take place, even when the auto tray switch, Platen APS and RADF/APS function are ON.	• OFF • ON
ATS/APS (Tray 1) If this switch is OFF, automatic switch over to tray 1 will not take place, even if the auto tray switch function is ON.	• OFF • ON
ATS/APS (Tray 2) If this switch is OFF, automatic switch over to tray 2 will not take place, even if the auto tray switch, Platen APS and RADF/APS function are ON.	• OFF • ON
ATS/APS (Tray 3) If this switch is OFF, automatic switch over to tray 3 will not take place, even if the auto tray switch, Platen APS and RADF/APS function are ON.	• OFF • ON
ATS/APS (Tray 4) If this switch is OFF, automatic switch over to tray 4 will not take place, even if the auto tray switch, Platen APS and RADF/APS function are ON.	• OFF • ON
Platen AMS The size of the original on the platen glass is read, and the magnification is automatically set so that the read image fits exactly on the paper of the selected size.	• OFF • ON
RADF AMS The size of the original in the RADF is read, and the magnification is automatically set so that the read image fits exactly on the paper of the selected size.	• OFF • ON

Setting item/Description	Description of setting (Underlined items indicate the initial state.)
Staple mode reset The staple mode is automatically canceled after a copy is made in the staple sort mode. (The copier returns to the sort mode.)	• OFF • ON
Key click sound This function is set to a buzzer tone conditions (whether the a buzzer tone is low or high, or is not output) when any key on the LCD screen is pressed.	• OFF • Low • High
Job memory recall This function automatically calls job memory No.15 when the copier is switched ON or when an auto reset takes place. Used to set a special setting for each user. * It does not function when job No.15 is not registered.	• OFF • ON
Sheet insertion The tray used for Sheet/Cover Insertion mode is selected.	• By-pass tray • Tray 1 • Tray 2 • Tray 3 • Tray 4 • Tray 5
A5 original type Japan:B6, KBM:5.5X8.5, KBI: A5	• Landscape • Portrait
Rotation This function rotates the image 90° before copying it, when the copy paper in the tray is of the same size as the original but offset 90° with respect to it. It can also be used to invert the top and bottom of the image of an A5R/5.5x8.5R original when making a one-sided original to two-sided copy.	• ON when the APS/AMS mode is ON and OFF • ON only in the APS/AMS mode • ON only in the APS mode • Prohibition against the rotation
1 Shot Indication	• 1 sec • 2 sec • 3 sec • 4 sec • 5 sec
Booklet To set the binding direction in the Booklet mode.	• Right binding • Left binding
Folded original mode If setting the original with folded on the RADF in the lengthwise direction, the original size detection may not operate correctly. In this case, if this function is ON, make a size detection operation to the first original as the same as the mixed original mode and detects the original size.	• OFF • ON

[15] Management list print

This mode is print out the user data list.

[Management list print selection screen]



List Print
Select item(s), press OK

Step	Operation
1	Enter the key operator mode.
2	**[Key operator menu screen]** Press the 14.List Print key.
3	**[Management list print selection screen]** Press the desired list key to be printed out. The selected key will be displayed in reverse. Job memoy list : To print out the contents registered by Job memory. User setting list : To print out the information of the operator managed by the EKC. Font pattern : To print out the Font pattern used in the copier.
4	Press the OK key to print out the selected list and to complete the setting.

[16] KRDS Host Call

Refer to the chapter of KRDS.

[17] Key Operator Mode Setting Item Table

Setting item menu		Setting description
1.System Initial	1.Time	To set the date & time and summertime
	2.Language	To set the language used in operating the machine
	3.Output tray	To set the tray as a priority setting
2.Copier Initial	1.Copy mode	To set the condition of the copy mode when the power switch turns ON
	2.Density	To set the condition of the copy density when the power switch turns ON
	3.Magnification	To set the magnification when the power switch turns ON
	4.Tray	To set the tray of priority when the power switch turns ON
	5.Output	To set the condition of the Finisher when the power switch turns ON
	6.Image quality	To set the image quality when the power switch turns ON
3.Preset button	1.Density	To set the user-set copy density
	2.Magnification	To set the user-set copy magnification
4.EKC	1.Change E.K.C data	To adjust data of the EKC
	2.E.K.C data list	To add, change and delete to/from the each EKC data list
	3.All counter reset	To reset all the counters
	4.E.K.C. On/Off setting	To set whether EKC is ON or OFF
	5.Copy Limit Reached effect	To set whether Copy limit reached effect is ON or OFF
5.Job memory		To lock/unlock or delete the job memory
6.Paper type		To set paper type in each tray
7.Panel contrast		To adjust the LCD panel contrast
8.Key ope. Data		To enter the extension number of Key operators which are displayed on the Help mode
9.Weekly timer	1.Weekly timer setting	To set whether the Weekly timer is used or not used
	2.Weekly timer Copier ON/OFF time set	To set the ON/OFF-time (by day of the week)
	3.Machine working day individual set	To set the ON date, OFF date (Individually/by day of the week)
	4.Lunch hour off function	To set whether the copier OFF or ON during lunch time
	5.Password setting	To set the password
10.Touch panel adj		To adjust the control panel
11.Paper size		To set the tray size
12.Power Save		To set the time until the power save mode is activated
13.Memory SW		To select the items and change the setting contents
14.List Print	Job memoy list	To print out the contents registered by Job memory
	User setting list	To print out the information of the operator managed by the EKC
	Font pattern	Print out the Font pattern used in the copier
15.KRDS host		To call the host when a trouble occurs

7040 PASSWORD LIST

Item	Number of digits	Setting method	Operator	Password entry	Remarks
Key operator mode	4	25 mode [6] Password setting	CE	• When the copier enters the key operator mode.	–
EKC master key code	8	25 mode [6] Password setting	CE	• When the copier is in the EKC setting mode of the key operator mode.	–
Weekly timer master key code	4	25 mode [6] Password setting	CE	• When the weekly timer setting screen of the key operator mode.	–
Weekly timer password setting for off-time using	4	Key operator mode [9] Weekly timer setting ↓ 5. Password setting for off-time using	Key operator	• When the operator wishes to turn ON the copier for a short time while it is turned OFF by the weekly timer.	–
EKC password	5	Key operator mode [4] EKC setting ↓ 2. EKC data registration 3. EKC data list	Key operator	• When the main power switch is ON.	• 256 passwords can be set.
KRDS host password	5	Refer to the chapter of KRDS.	CE	• When the host computer is called.	• If KRDS is not installed, not available.

2

PROCESS

2. PROCESS

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OUTLINE AND CONSTRUCTION

In this digital copying machine, optical data (light beam) reflected from the original is converted into electrical signals, subjected to image processing, then converted back into optical data (light beam) and directed onto the drum.
Figure 1 shows the composition of the machine, and Fig.2 an outline of the digital copying process.

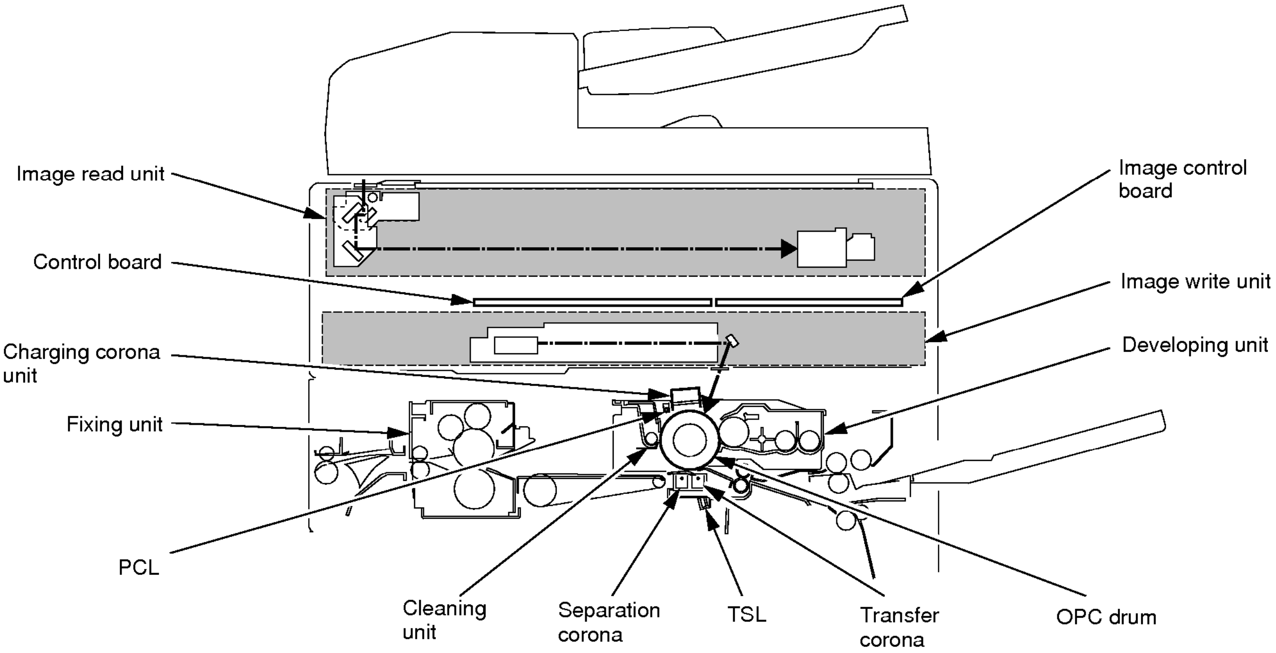


Image read unit
Control board
Charging corona unit
Fixing unit
PCL
Cleaning unit
Separation corona
TSL
Transfer corona
OPC drum
Image control board
Image write unit
Developing unit

Fig.1

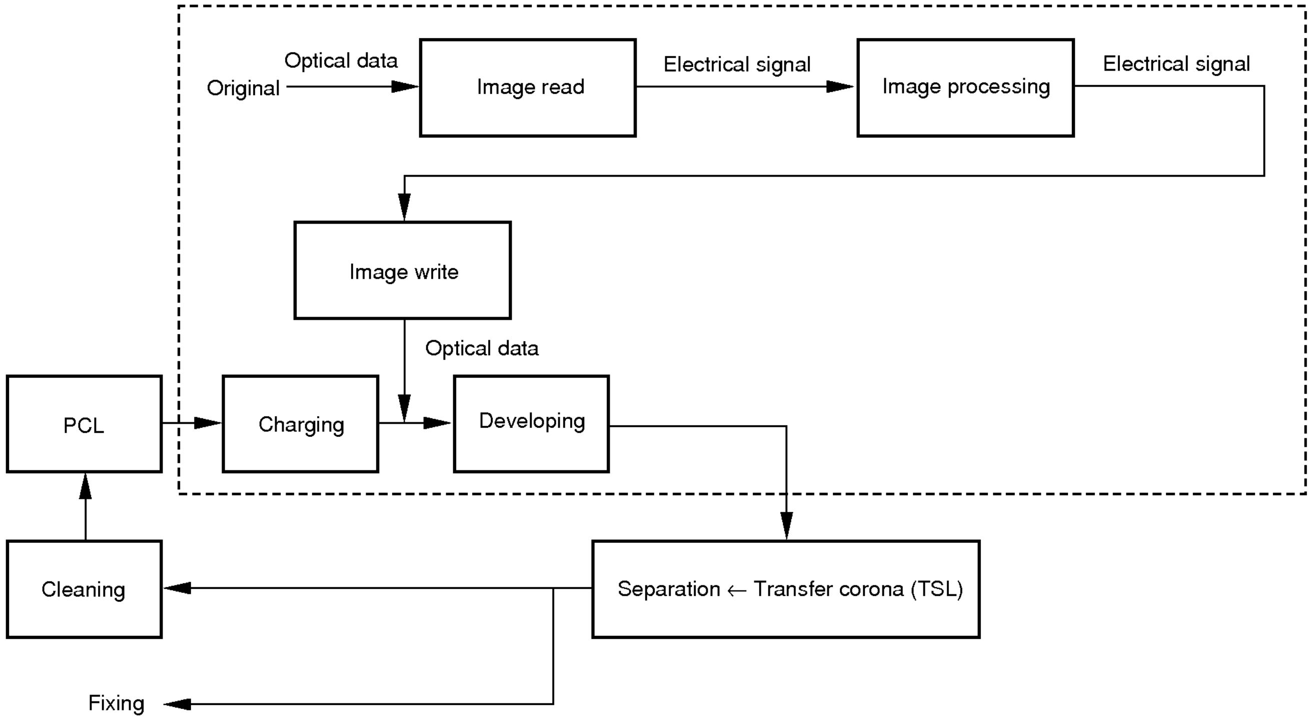

Original
Optical data
Image read
Electrical signal
Image processing
Electrical signal
Image write
Optical data
PCL
Charging
Developing
Cleaning
Separation ← Transfer corona (TSL)
Fixing

Fig.2

IMAGE READ MECHANISM

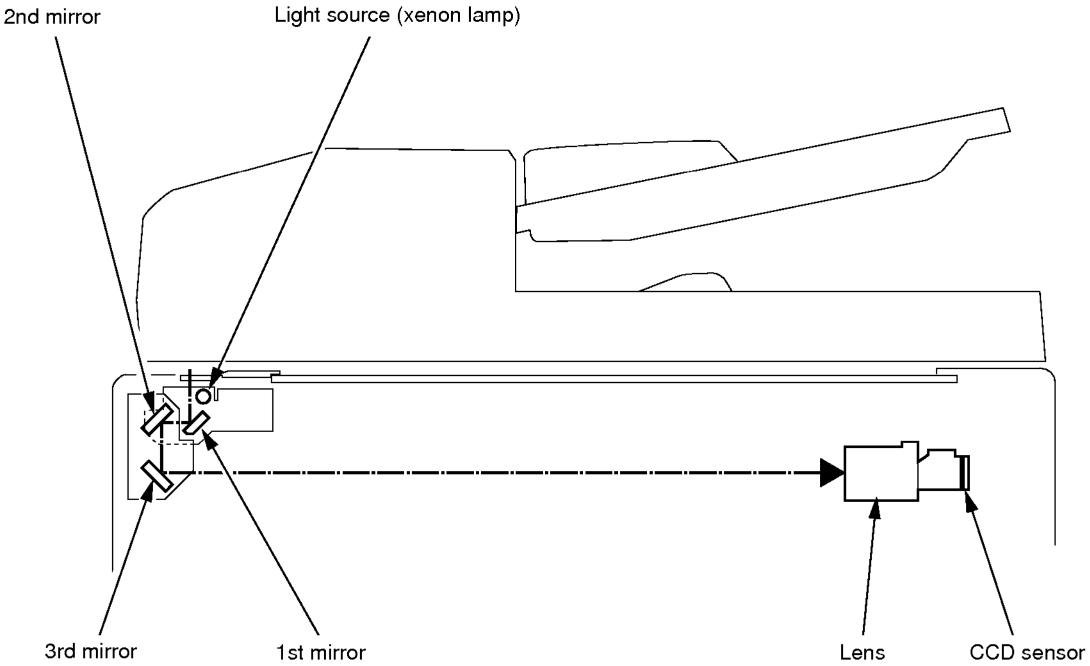

2nd mirror
Light source (xenon lamp)
3rd mirror
1st mirror
Lens
CCD sensor

Fig.3

[1] Outline

A xenon lamp is used as the light source, and the light from the lamp is directed onto the original.
The light reflected off the original is reflected by the 1st, 2nd and 3rd mirrors shown in figure 3, then passed through the lens and directed onto the CCD sensor.
The CCD sensor consists of approx. 5000 pixels. One pixel is 7 µm in length, and the length on the original that can be read by one pixel is 63.5 µm.

IMAGE PROCESSING

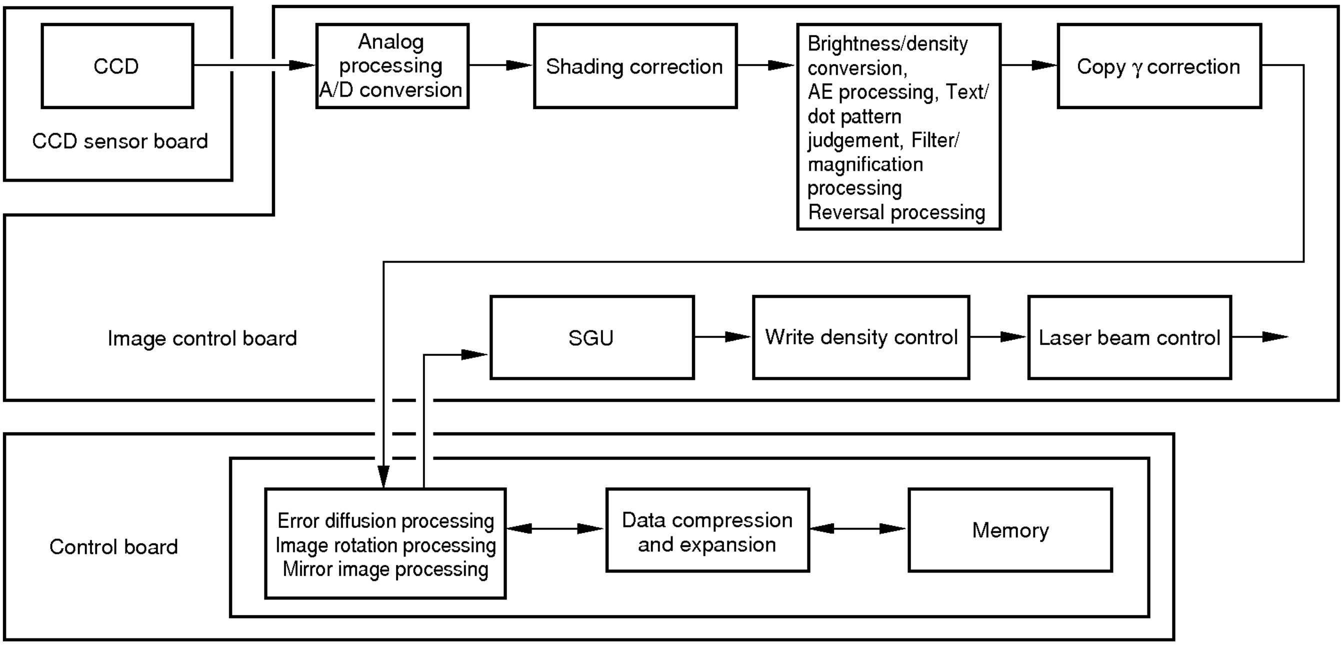

CCD
CCD sensor board
Analog processing A/D conversion
Shading correction
Brightness/density conversion, AE processing, Text/ dot pattern judgement, Filter/ magnification processing Reversal processing
Copy γ correction
Image control board
SGU
Write density control
Laser beam control
Control board
Error diffusion processing Image rotation processing Mirror image processing
Data compression and expansion
Memory

Fig.4

[1] Outline

The analog signal produced by opto-electric conversion by the CCD sensor on the CCD sensor board is subjected to analog processing, then A/D-converted, and subjected to image processing.

Image processing consists of shading correction, brightness/ density conversion, AE processing, text/dot pattern judgement, filter/magnification change processing, reversal processing, copy γ correction, write density correction, and laser beam control. In addition, error diffusion processing, mirror image processing, image rotation processing, mirror image processing and data compression and expansion are carried out within electronic RDH on the control board.

[2] Analog Processing

In the analog processing board, the minute signals from the CCD sensor are amplified and also level-shifted into the A/D conversion range.

Amplification and level-shifting take place automatically at the shading correction timing by an electronic variable resistor, hence there is no need to perform manual adjustment.

[3] A/D Conversion

The image signals from the analog processing board are converted one pixel at a time into 8-bit digital signals.

[4] Shading Correction

Shading correction is done to even out the light distribution of the CCD sensor. The following correction takes place at the specified timing.

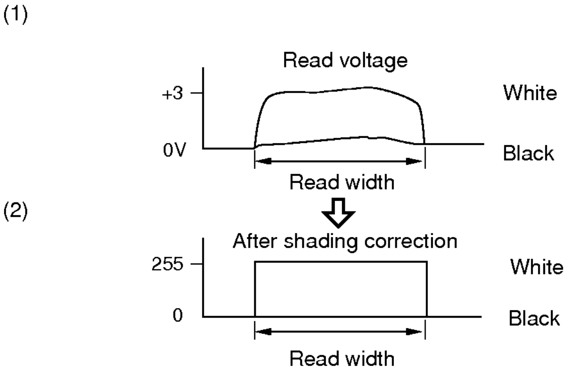
1. White correction

The voltage output from each pixel of the CCD sensor when the white reference plate is exposed to the light from the exposure lamp is memorized as the maximum output value for that pixel.

2. Black correction

The output voltage from each pixel of the CCD sensor when the exposure lamp is out is memorized as the minimum output voltage for that pixel.

* Based on the difference between the white and black data for each pixel memorized in 1 and 2 above, the calculated result that indicates the number of the step corresponding to the image data read from the original is output to an accuracy of 10 bits.



(1)····A/D conversion input
(2)····Shading correction output

Fig.5

[5] Brightness/Density Conversion

The signal resulting from shading correction corresponds to the light reflected off the original, hence it is generally called a brightness signal. The brightness/density conversion section converts the brightness signal into a density signal, as shown in the Fig. 6.

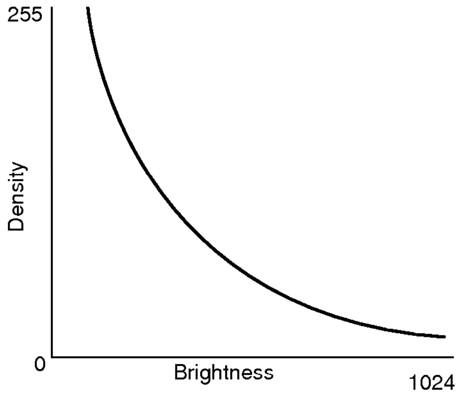


Fig.6

[6] AE Processing

A density that is suitable for the density of the original is automatically selected by AE processing, and a suitable copy made.

[7] Text/Dot Pattern Identification

In order to copy an original under the optimum conditions (to preform the appropriate filter processing), the text/dot pattern identification section judges whether the read part is text, dot pattern or a photograph, and uses the results in the subsequent filtering section.

[8] Filtering

Appropriate filtering takes place according to the kind of original and the selected magnification.

(1) Text filter .... Highlights the light and dark parts of the original.

(2) Dot pattern filter ..... Reduces moire.

(3) Photograph filter .... Improves the gray scale reproduction.

[9] Magnification Processing

In an analog machine, the horizontal magnification is changed by changing the scanning speed of the exposure unit, and vertical magnification by changing the position of the lens. In this machine, the horizontal magnification is changed by changing the scanning speed of the exposure unit or DF copy mode, and the vertical magnification by means of electrical image processing.

The read unit of the CCD (63.5 µm) and the write unit of the laser (63.5 µm) are equal to each other, and remain unchanged when the copy image is enlarged or reduced in the vertical direction. As a result, write data that corresponds exactly to the write position when the image is enlarged or reduced in the vertical direction sometimes fails to exist.

1. Vertical magnification change processing during enlargement

As shown in the example of Fig.7, if the pixel data obtained when the original is read by the CCD is D1 to D5, the positions of the read data when the image is enlarged are E1 to E5. However, the following problems will occur if the write data consists of this read data alone.

(a) There will be a gap between one data and the next, resulting in gaps in the image.

(b) The data position and write position will not coincide exactly.

Consequently, if read data that corresponds exactly to the write position fails to exist, as indicated by the dotted lines of Fig.7, the write density is determined as shown below.

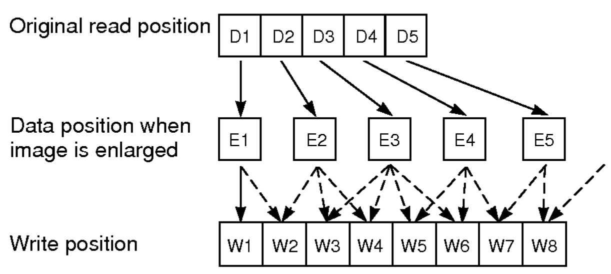


Fig.7

2. Vertical magnification change processing during reduction

As shown in the example of Fig. 8, if the pixel data obtained when the original is read by the CCD is D1 to D5, the positions of the read data when the image is reduced overlap each other as indicated by R1 to R5, hence the write positions fail to coincide with the read positions. Therefore, the write density is determined as shown below.

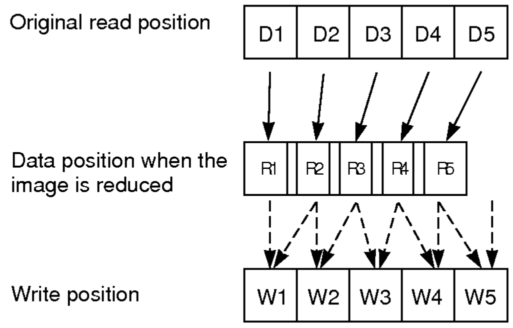


Fig.8

3. Density correction

Figure 9 is a graph the vertical axis of which represents density (256 steps) and the horizontal axis of which represents position: Here, the distance between E2 and E1 of Fig. 7 is set out on the horizontal axis and divided into 16 steps. If the position with respect to write data W2 is " ℓ ", the density S can be obtained using the following equation.

$$S = E_1 + \left(\frac{E_2 - E_1}{16} \right) \times \ell$$

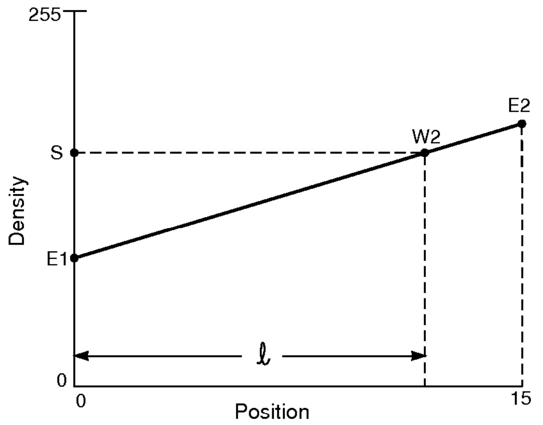


Fig.9

[10] Reversal Processing

This function reverses the input brightness data in order to reverse black and white when the reverse copy mode is selected.

[11] Copy γ Correction

The copy γ correction function selects the density curve corresponding to the density selected by the density button on the operation panel. The selected density curve is applied to the data that was subjected to filter/magnification change processing.
Suitable density curves are provided for the text, photo and text, photo, & INCREASE CONTRAST modes.

[12] SGU

SGU is a function that generates various test patterns.

[13] Write Density Control

The write density control function converts image data to the optimum laser exposure based on the characteristics related to the drum such as drum potential, toner density, etc.

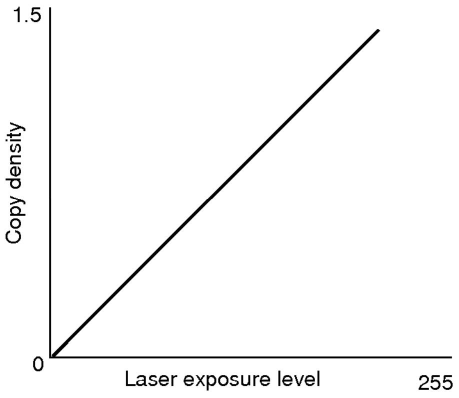


Fig.10

[14] Error Diffusion Processing

Error diffusion processing is intended to make efficient use of the installed memory and also to obtain a satisfactory copy image.

[15] Image Rotation Processing

Rotates the image direction to 90, 180 and 270 degrees according to requirements.

[16] Mirror image processing

The read image in the DF mode depends on the relationship between the read image in the platen mode and the mirror image. Thus, during the DF mode, carry out processing to return the mirror image to a standard image.

[17] Data Compression and Expansion Processing

This processing function stores compressed image data in the memory to enable a large quantity of image data to be stored when electronic RDH is used. When outputting the image from the memory, the compressed data is expanded to restore the data.

[18] Memory

The memory can hold about eighty A4 size originals consisting of average word processor text. The number of pages will be less than this, if the originals include many photographs and dot pattern images. Expansion memory units (MU-103) are available as an option.

[19] Laser Beam Control

This function controls the laser data output timing which is synchronized by the index sensor.

IMAGE WRITE

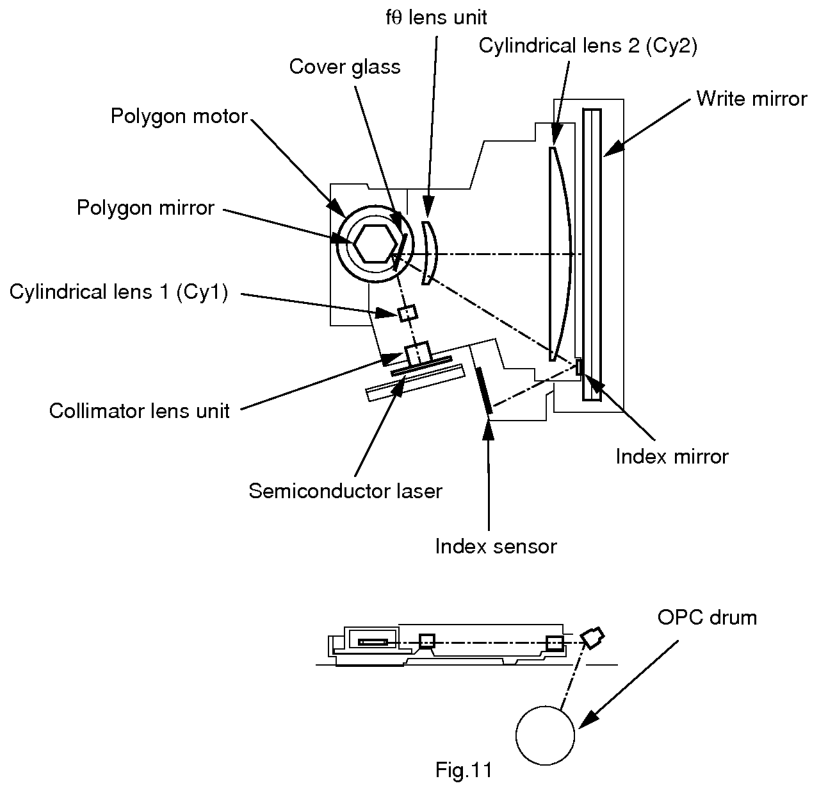

fθ lens unit
Cylindrical lens 2 (Cy2)
Cover glass
Write mirror
Polygon motor
Polygon mirror
Cylindrical lens 1 (Cy1)
Collimator lens unit
Index mirror
Semiconductor laser
Index sensor
OPC drum

Fig.11

[1] Outline

Figure 11 shows the layout of the various parts of the write unit. The processed image data is output by a semiconductor laser. The light output from this lasers is sent via the path shown in Fig.12 to the OPC drum.

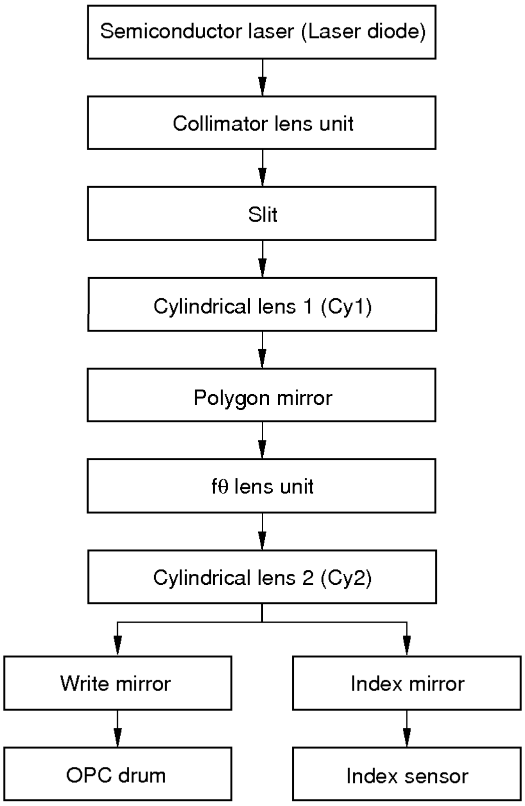

Semiconductor laser (Laser diode)
Collimator lens unit
Slit
Cylindrical lens 1 (Cy1)
Polygon mirror
fθ lens unit
Cylindrical lens 2 (Cy2)
Write mirror
Index mirror
OPC drum
Index sensor

Fig.12

[2] Collimator lens

Figure 13 shows the function of the collimator lens. This lens is used to form the light which diverges from a point source into a parallel beam.

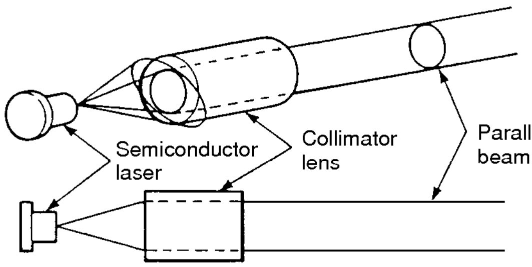

Semiconductor laser
Collimator lens
Parallel beam

Fig.13

[3] Slit

Shapes the laser beam radiated from the semiconductor laser.

[4] Polygon mirror

This is a multi-sided mirror which converts the laser beam into a scanning beam. An hexagonal mirror is used in this machine. Figure 14 shows the appearance of the polygon mirror.
This machine uses an air bearing motor as a polygon motor to achieve high speed rotation. The polygon motor is enclosed in a hermetically sealed case. Never attempt to disassemble the motor.

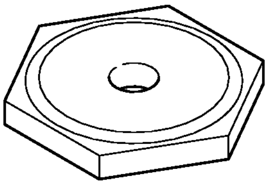


Fig.14

[5] fθ lens

The polygon mirror rotates at a constant angular speed. Consequently, if a general image forming lens were to be used, the speed at which the laser beam scans the surface of the drum would vary at the center and the both edge of the drum, as shown in Fig.15.

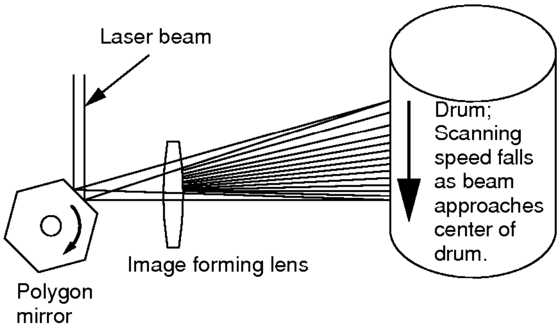

Laser beam
Drum;
Scanning speed falls as beam approaches center of drum.
Image forming lens
Polygon mirror

Fig.15

An fθ lens is used to maintain the scanning speed constant over the entire length of the drum.

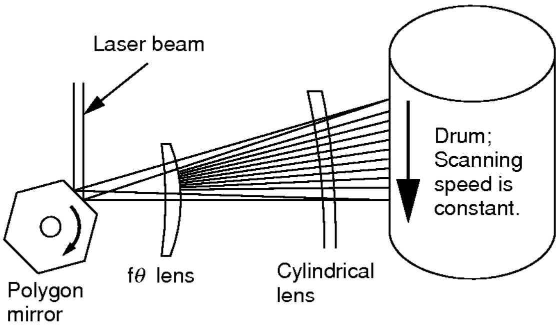

Laser beam
Drum;
Scanning speed is constant.
Polygon mirror
fθ lens
Cylindrical lens

Fig.16

[6] Cylindrical Lenses

Two lenses, cylindrical lens 1 (Cy1) and cylindrical lens 2 (Cy2), are used to eliminate the tilt error of the polygon mirror. Cylindrical lenses 1 and 2 are installed before and after the polygon mirror, as shown in Fig.17. The laser beam is focused on the polygon mirror by means of cylindrical lens 1, and the light reflected off the polygon mirror is once again focused on the drum by means of cylindrical lens 2.

The optical relationship between the polygon mirror and the drum face with respect to cylindrical lens 2 is that of image and object. Consequently, even if the polygon mirror is tilted, the light path is corrected by cylindrical lens 2, ensuring that the beam is scanned along the same line.

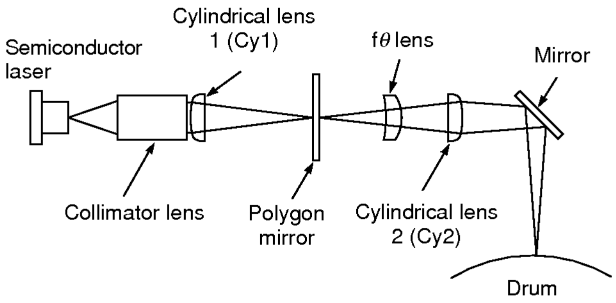

Cylindrical lens 1 (Cy1)
Semiconductor laser
fθ lens
Mirror
Collimator lens
Polygon mirror
Cylindrical lens 2 (Cy2)
Drum

Fig.17

[7] Index Sensor

This sensor is intended to determine the leading edge write position for each scan in the axial direction of the drum.

IMAGE FORMATION

[1] Charging

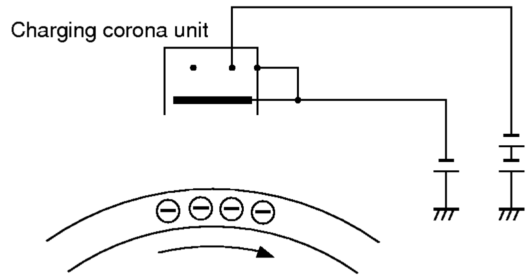


Fig.18

A negative charging method using a Scorotron is employed. A constant negative voltage is applied to the charging plate and back plate in order to maintain the potential of the drum constant.

[2] Exposure

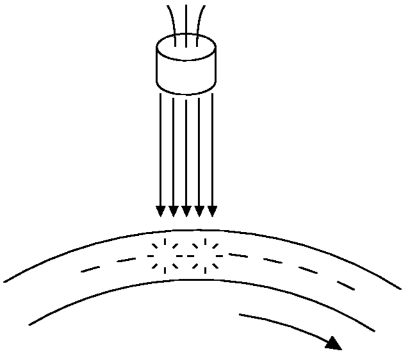


Fig.19

Exposure is performed by means of a laser beam, causing the charge on the drum to be erased.

[3] Developing

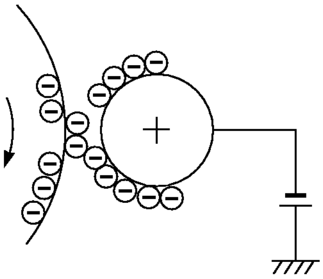


Fig.20

Due to a potential difference negatively charged toner adheres to the parts of the surface of the drum where charge was erased during the exposure process.

[4] Transfer and TSL

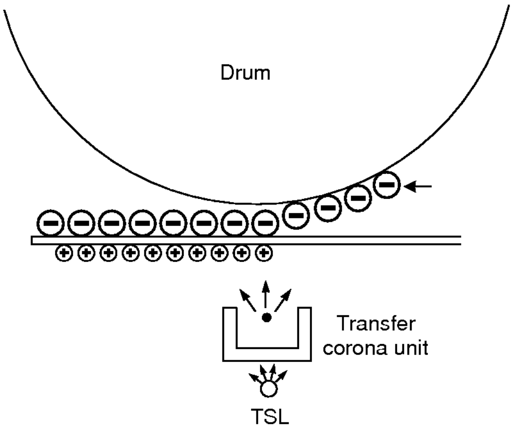


Fig.21

The transfer corona unit causes the toner on the drum to be transferred to the paper by means of a discharge from the back of the paper.
The TSL improves the transfer of the toner and the separation of the paper.

[5] Separation

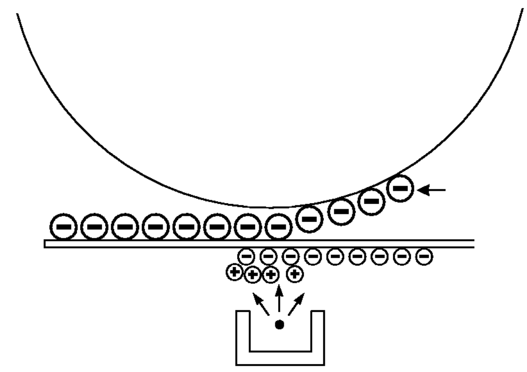

Separation corona unit

Fig.22

The separation corona unit erases the charge on the paper by applying an AC discharge from the back of the paper, thus enabling the paper to separate from the drum under its own weight.

[6] Cleaning

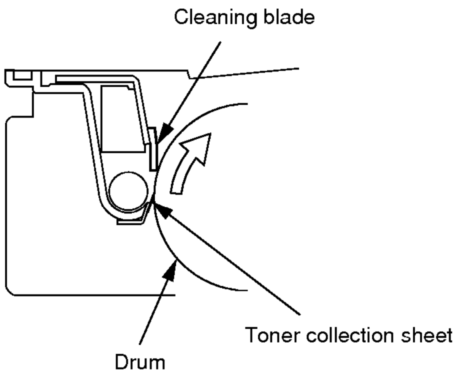

Cleaning blade
Toner collection sheet
Drum

Fig.23

Toner remaining on the drum is removed by the cleaning blade.

[7] PCL

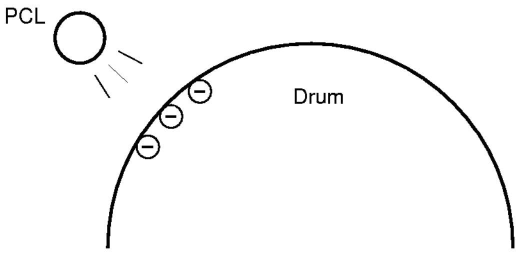


Fig.24

The PCL erases the potential remaining on the surface of the drum.

3

MAIN BODY

3. MAIN BODY

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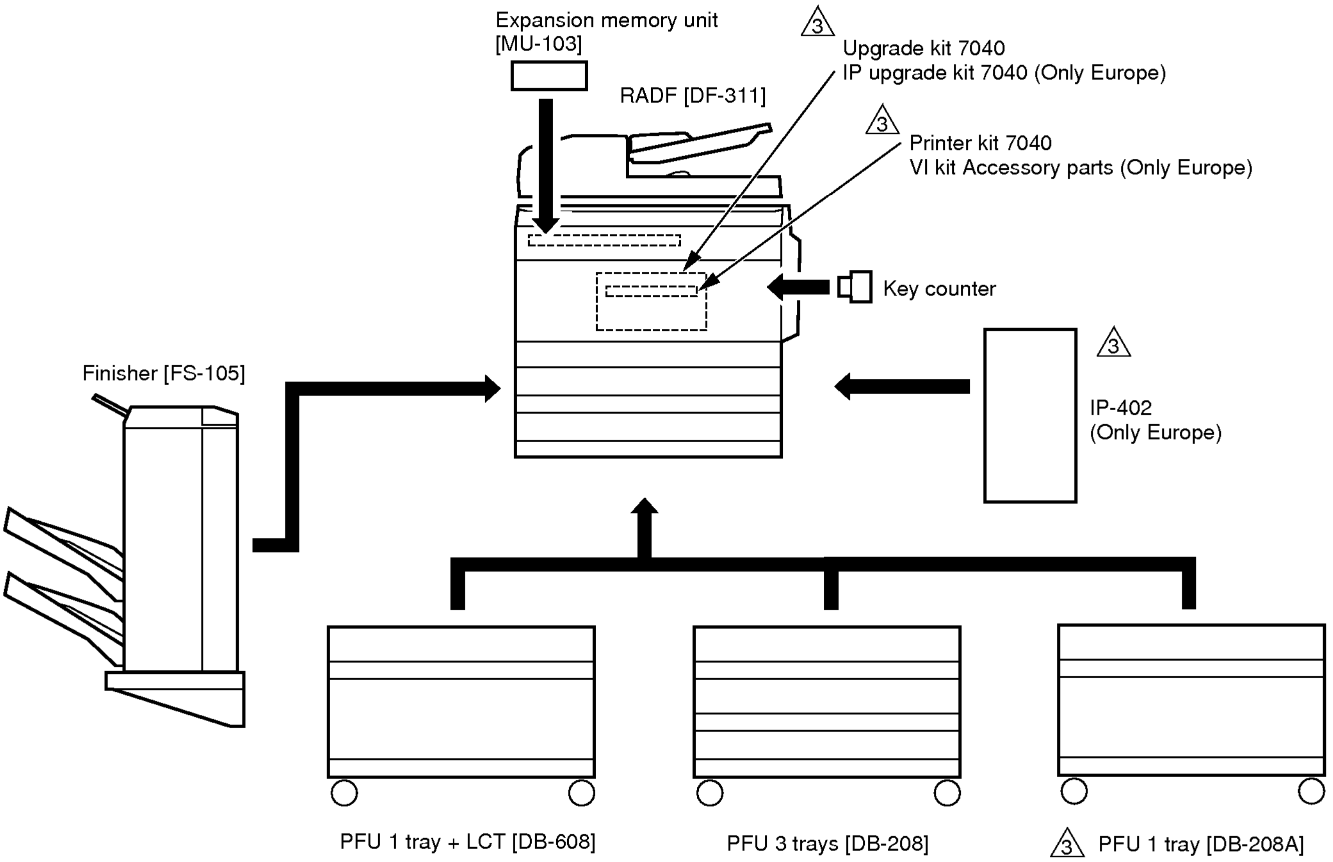
SYSTEM OUTLINE


Expansion memory unit [MU-103]
3
Upgrade kit 7040
IP upgrade kit 7040 (Only Europe)
RADF [DF-311]
3
Printer kit 7040
VI kit Accessory parts (Only Europe)
Key counter
3
Finisher [FS-105]
IP-402
(Only Europe)
PFU 1 tray + LCT [DB-608]
PFU 3 trays [DB-208]
3
PFU 1 tray [DB-208A]

7040 PRODUCT SPECIFICATIONS

1. Type

Type: Semi-console type
Copying method: Indirect electrostatic method
Original table method: Fixed
Photosensitive material: OPC
Sensitizing method: Laser writing method
Paper feed method: One stacked tray (500 sheets, 80 g/m^2)
Multi by-pass tray (100 sheets, 80 g/m^2)
LCT (1500 sheets, 80 g/m^2)
PFU (500 sheets, 80 g/m^2 x 1 tray, or 3 trays)

2. Functions

Originals: Sheets, books, solid objects
Original size: Max A3
Copy size: A3 to A5, 8.5 x 11
Magnification
Fixed magnifications: x1.00, x1.15, x1.22, x1.41, x0.86, x0.82, x0.71
Special ratio magnifications: 3 modes
Zoom magnification: x0.25 to 4.00 (1% steps)
Vertical magnification: x0.25 to 4.00 (1% steps)
Horizontal magnification: x0.25 to 4.00 (1% steps) (However, the magnification range is x0.50 to x4.00 in the superfine mode.)
Warm-up time: 90 seconds or less (20°C, rated voltage) *1
First copy time (A4, 8.5 x 11): 6 seconds or less
Continuous copy speed (A4, 1:1):

Mode	Copy speed (copies/minute)
Platen (superfine mode)	35
Platen/Memory (fine, normal)	40

Number of continuous copies: 1 to 999
Copy density selection: AE, manual, Arbitrarily set density (2 modes)
Special functions: Sheet/Cover Interleave, Chapter, Combination (2-in-1, 4-in-1, 8-in-1), Booklet, Transparency Interleave, Image Insert, Book Copy, Mixed Original, Tex/Photo Enhance (text/photo/pencil), Reverse Image, Repeat, Frame/Fold Erasure, Auto Layout, Thin/Thick Paper, Image Shift, Non-image Area Erase, memory function, density monitor, single step, density shift, printing function, copy reservation, original rotation, weekly timer, job memory

3. Copy Paper

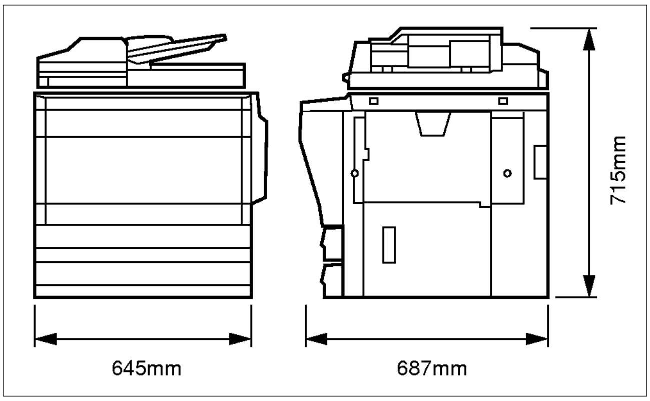
Plain paper High quality paper (60 g/m^2 to 90 g/m^2)
Special paper (By-pass paper feed only)
- Label paper
- OHP film
- Blueprint master
- Recycled paper
- High quality paper (50 g/m^2 to 59 g/m^2, 91 g/m^2 to 130 g/m^2)

4. Options

Finisher: FS-105
PFU: DB-208 (500 x 3 trays),
△3 DB-208A (500 x 1 tray),
DB-608 (500 x 1 tray +1500 LCT)
Expansion memory unit: MU-103
△3 **Printer:** Printer kit 7040
Upgrade kit 7040
IP-402 + VI kit Accessory parts (Only Europe)
IP Upgrade kit 7040 (Only Europe)
Key counter

5. Particulars of Machine

Power source: 230 VAC -14% to +10.6%, 50 Hz/60 Hz
120 VAC ±10%, 60 Hz
Power consumption: Max 1500 W (when all options are connected)
Weight: Approx. 100 kg
Machine dimensions



*1: 90 seconds is the machine for the 230VAC specification. Warm-up time differs depend on the power source (voltage).

6. Maintenance

Maintenance interval: Every 100,000 copies
Machine service life: 1,200,000 copies or 5 years

7. Copy Materials

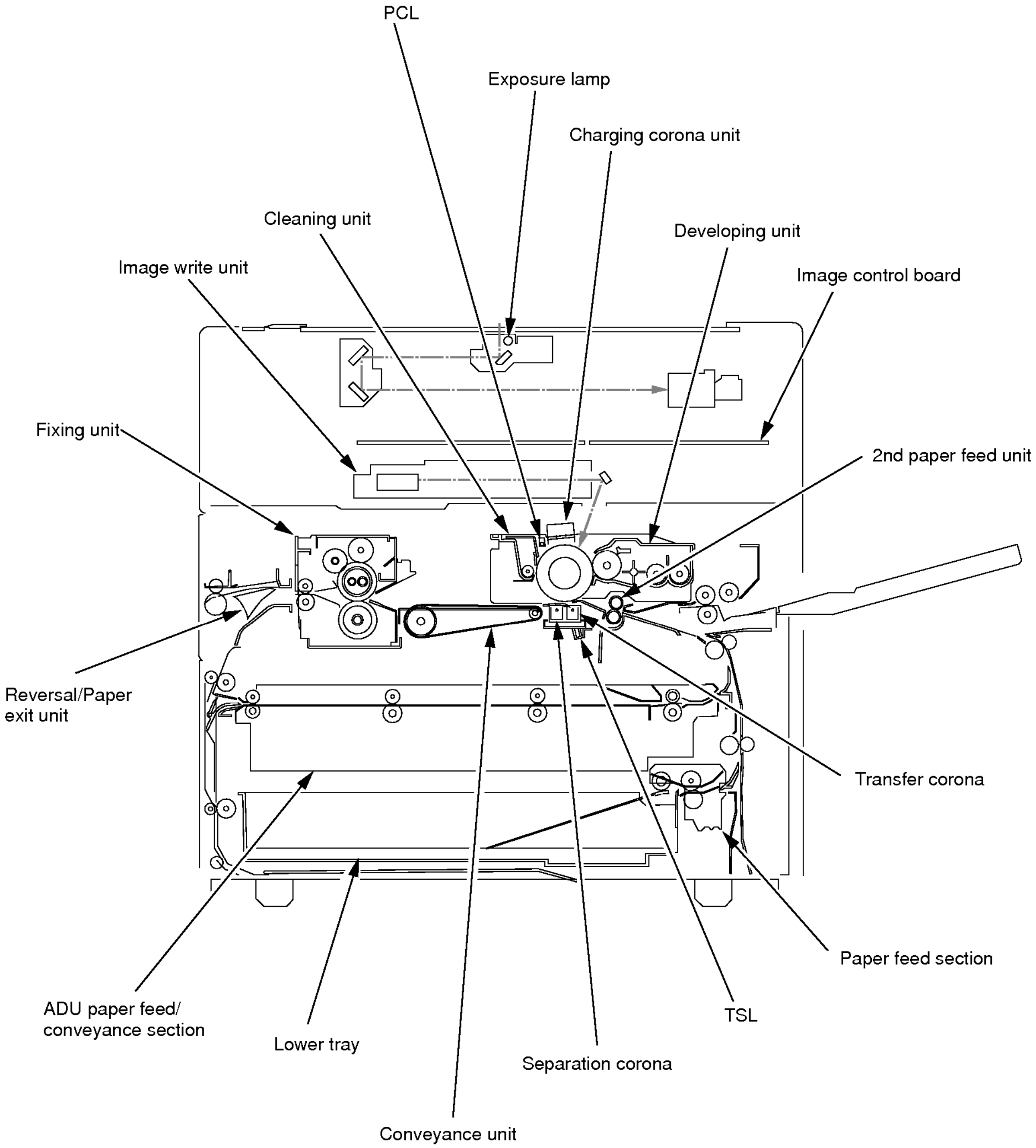
Developer: Exclusively for 7040
Toner: Exclusively for 7040
Drum: OPC drum (ϕ60)
Exclusively for 7040

8. Machine Operating Environment

Temperature: 10 to 30°C
Humidity: 10 to 80%RH

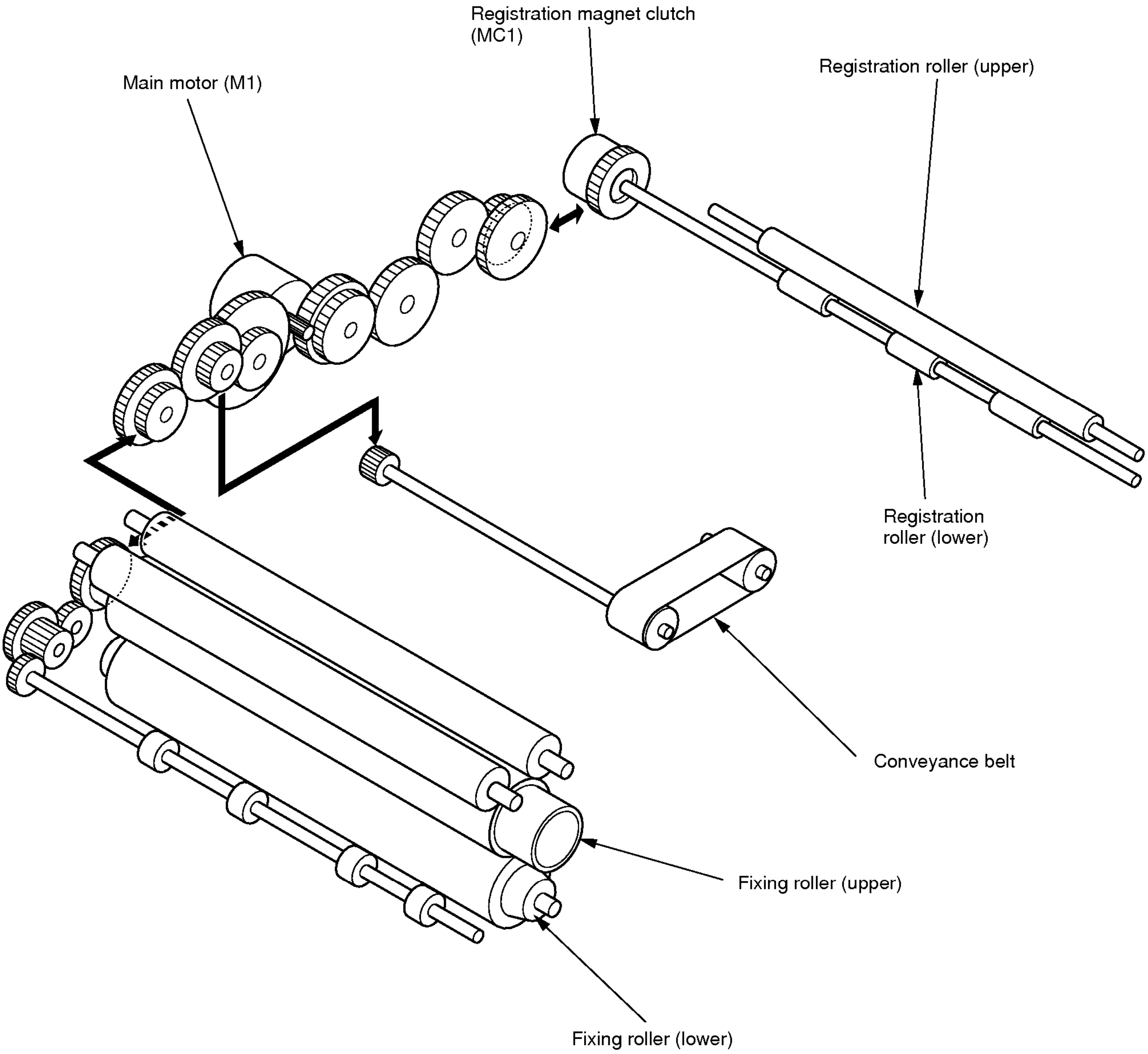
These specifications are subject to change without notice.

CENTER CROSS-SECTION

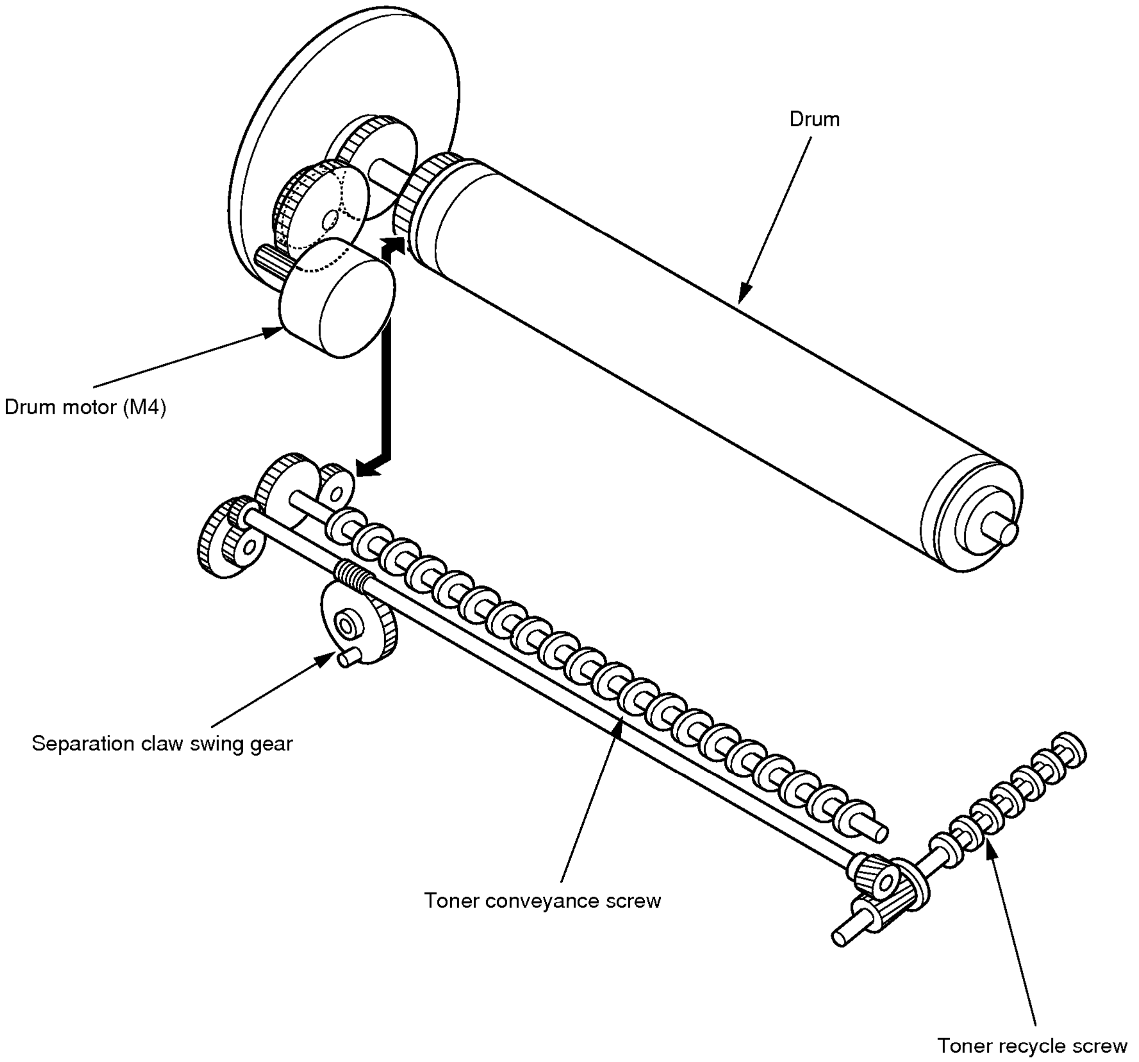

PCL
Exposure lamp
Charging corona unit
Cleaning unit
Developing unit
Image write unit
Image control board
Fixing unit
2nd paper feed unit
Reversal/Paper exit unit
Transfer corona
Paper feed section
ADU paper feed/ conveyance section
Lower tray
TSL
Separation corona
Conveyance unit

DRIVE SYSTEM DIAGRAM

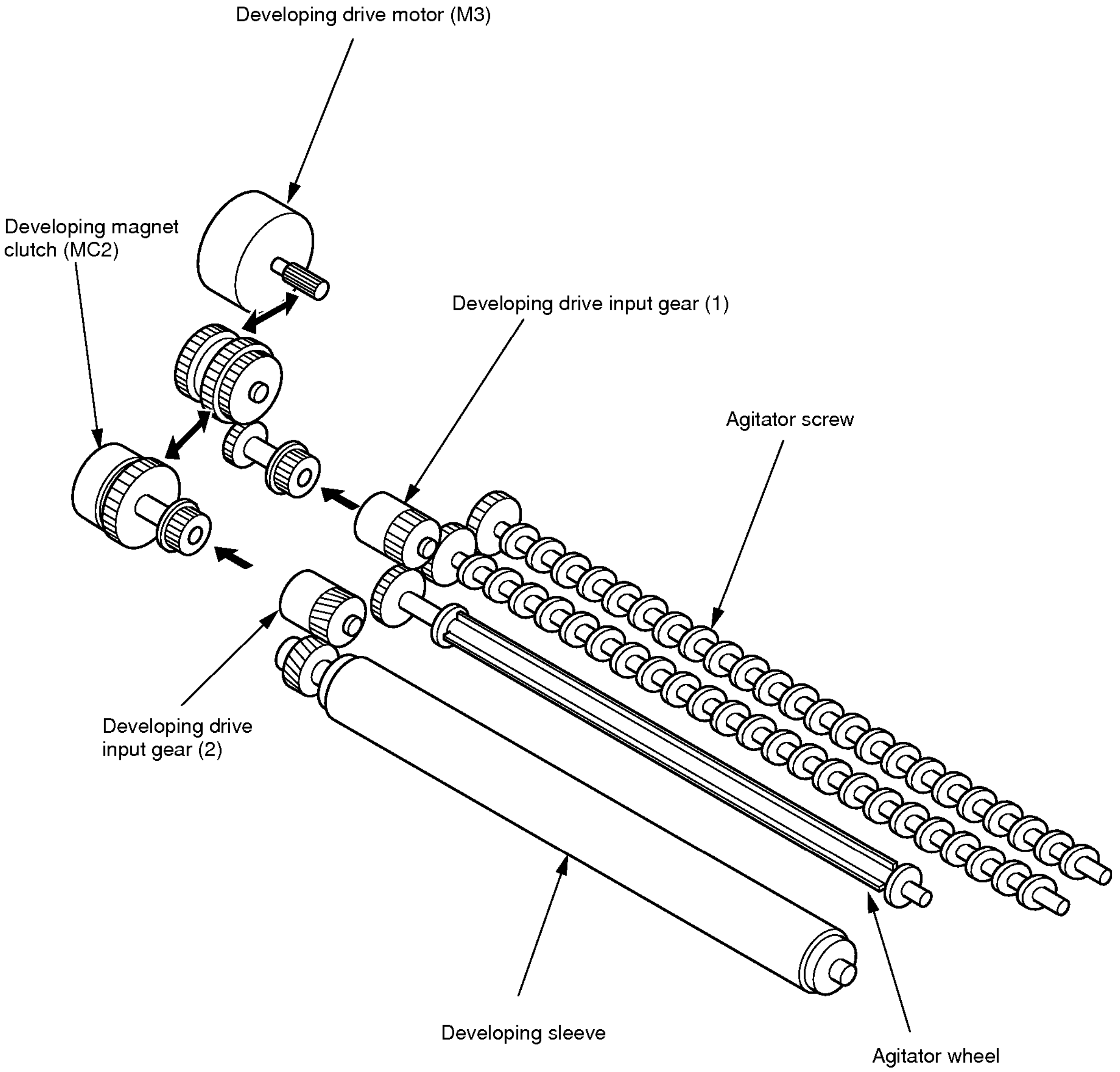
[1] Main Drive


Registration magnet clutch (MC1)
Registration roller (upper)
Main motor (M1)
Registration roller (lower)
Conveyance belt
Fixing roller (upper)
Fixing roller (lower)

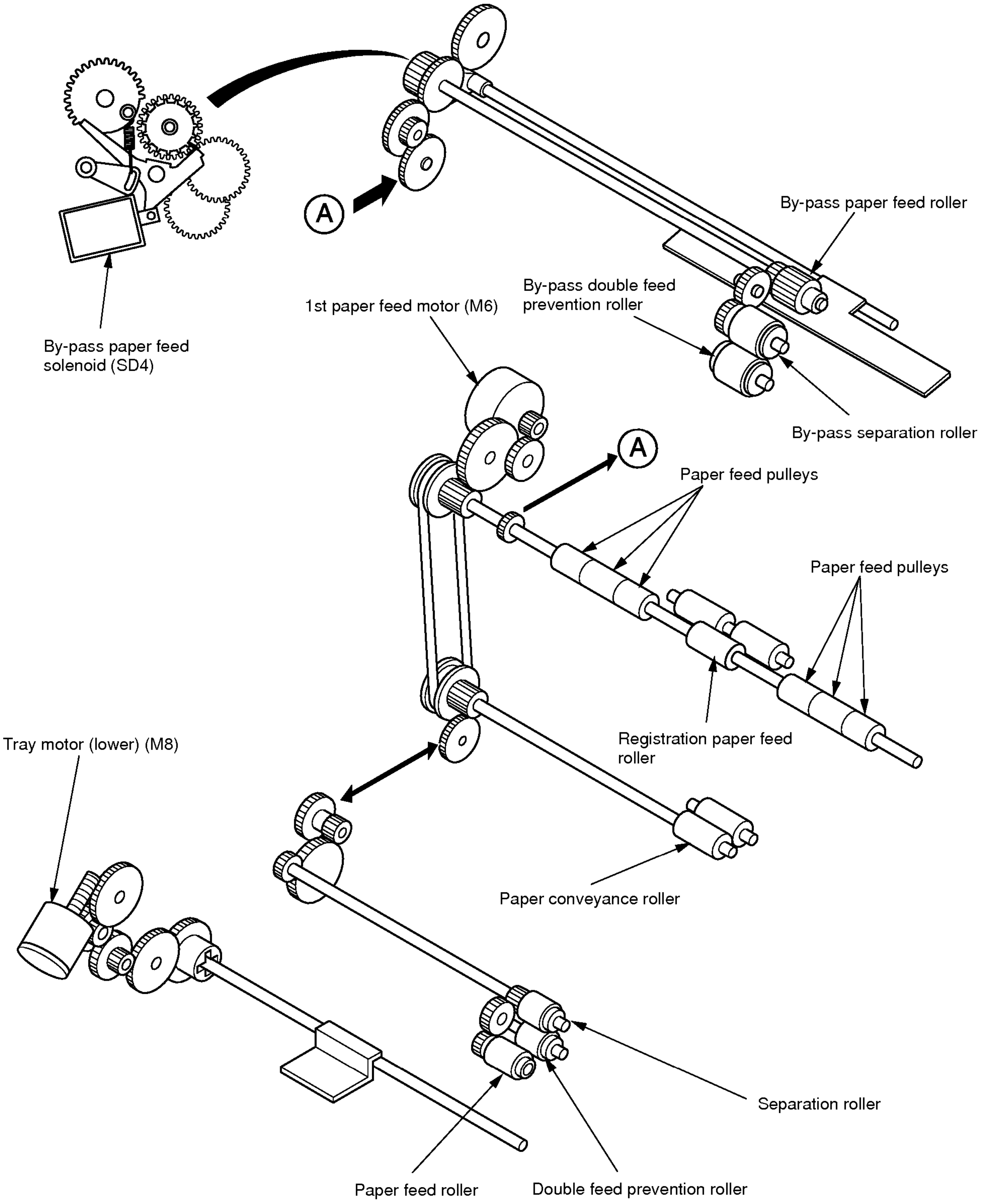
[2] Drum / Toner Recycle Drive


Drum
Drum motor (M4)
Separation claw swing gear
Toner conveyance screw
Toner recycle screw

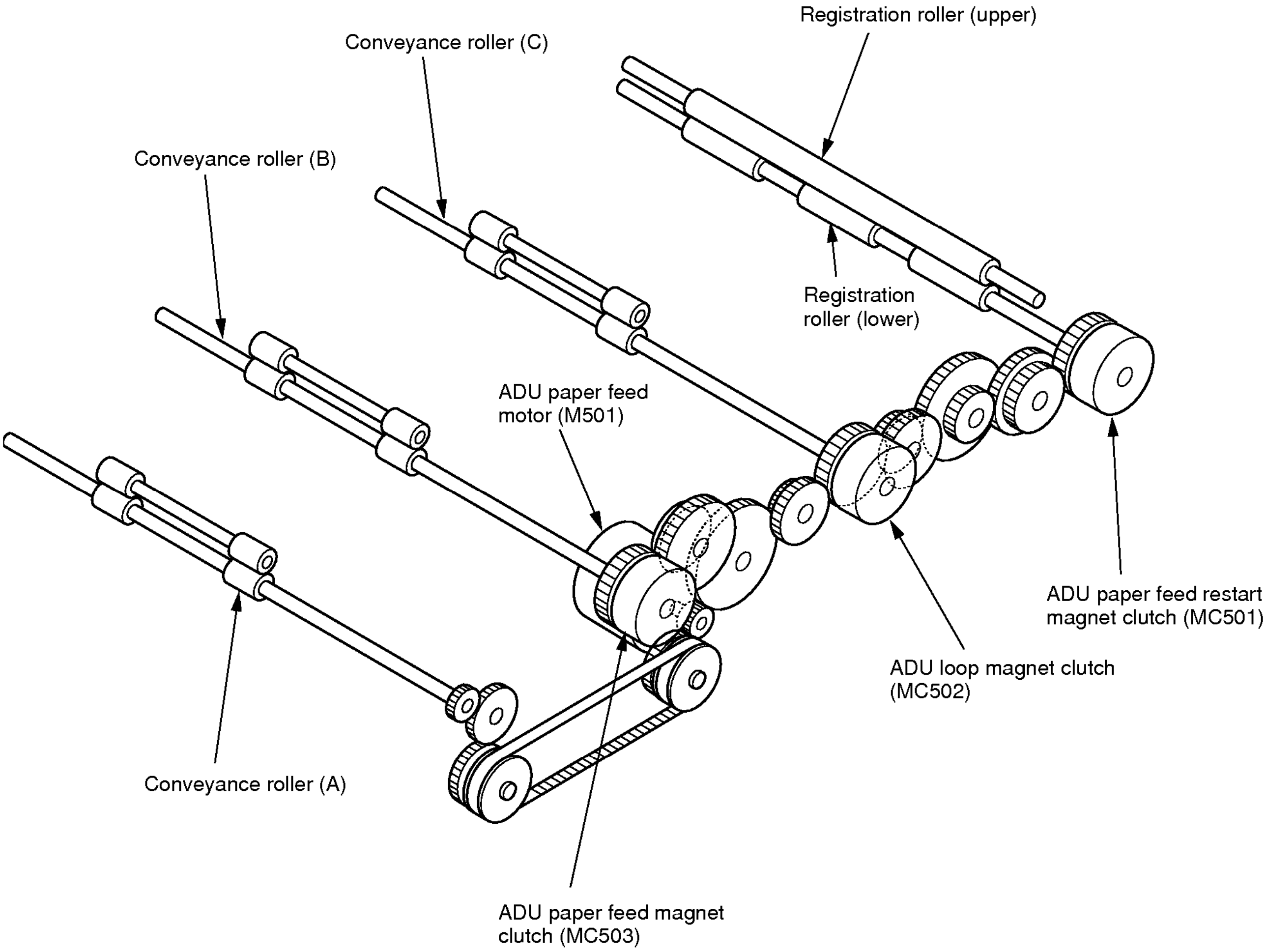
[3] Developing Drive


Developing drive motor (M3)
Developing magnet clutch (MC2)
Developing drive input gear (1)
Agitator screw
Developing drive input gear (2)
Developing sleeve
Agitator wheel

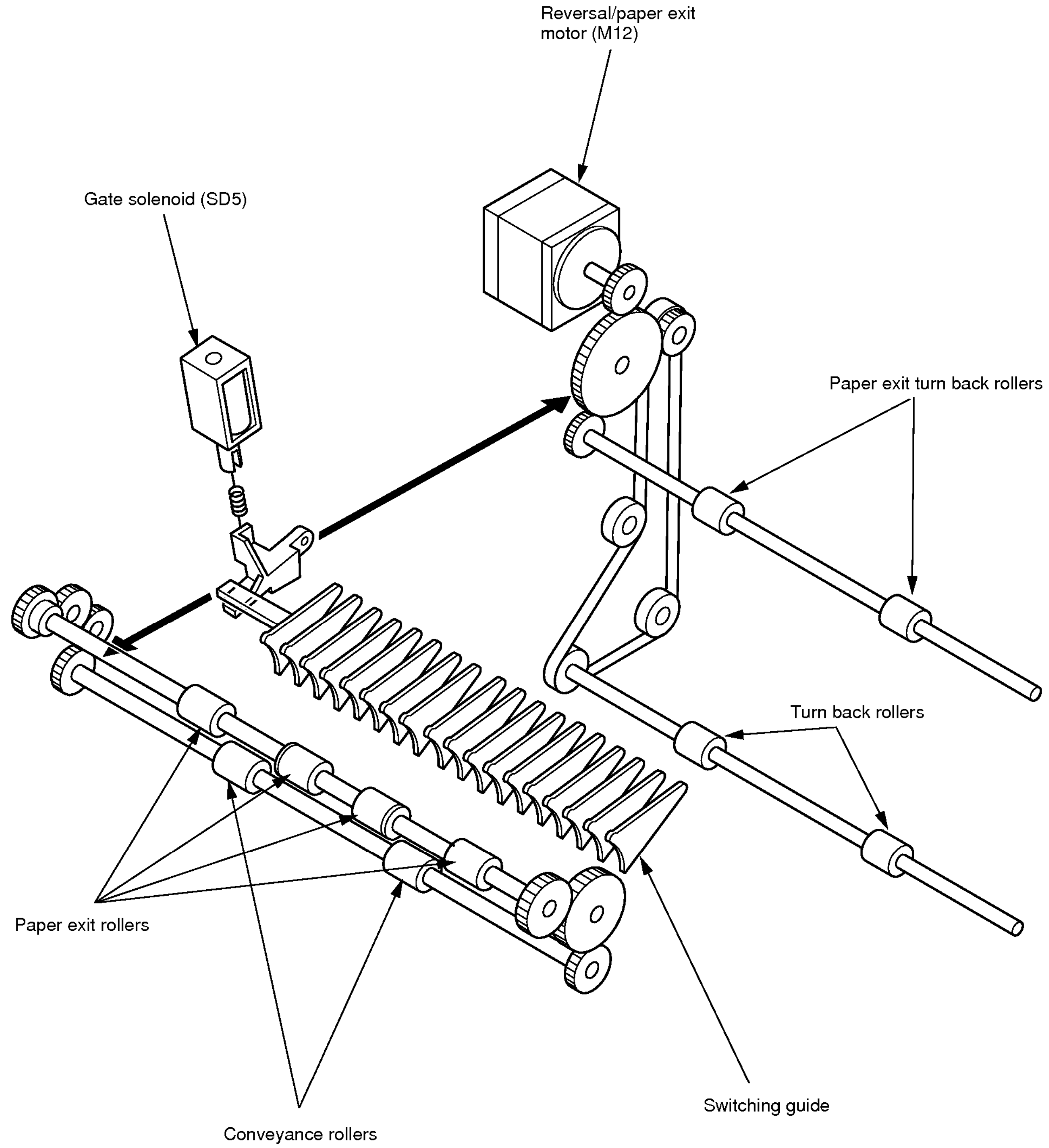
[4] By-pass Paper Feed / 1st Paper Feed Drive


A
By-pass paper feed roller
By-pass double feed prevention roller
1st paper feed motor (M6)
By-pass paper feed solenoid (SD4)
By-pass separation roller
A
Paper feed pulleys
Paper feed pulleys
Registration paper feed roller
Tray motor (lower) (M8)
Paper conveyance roller
Separation roller
Paper feed roller
Double feed prevention roller

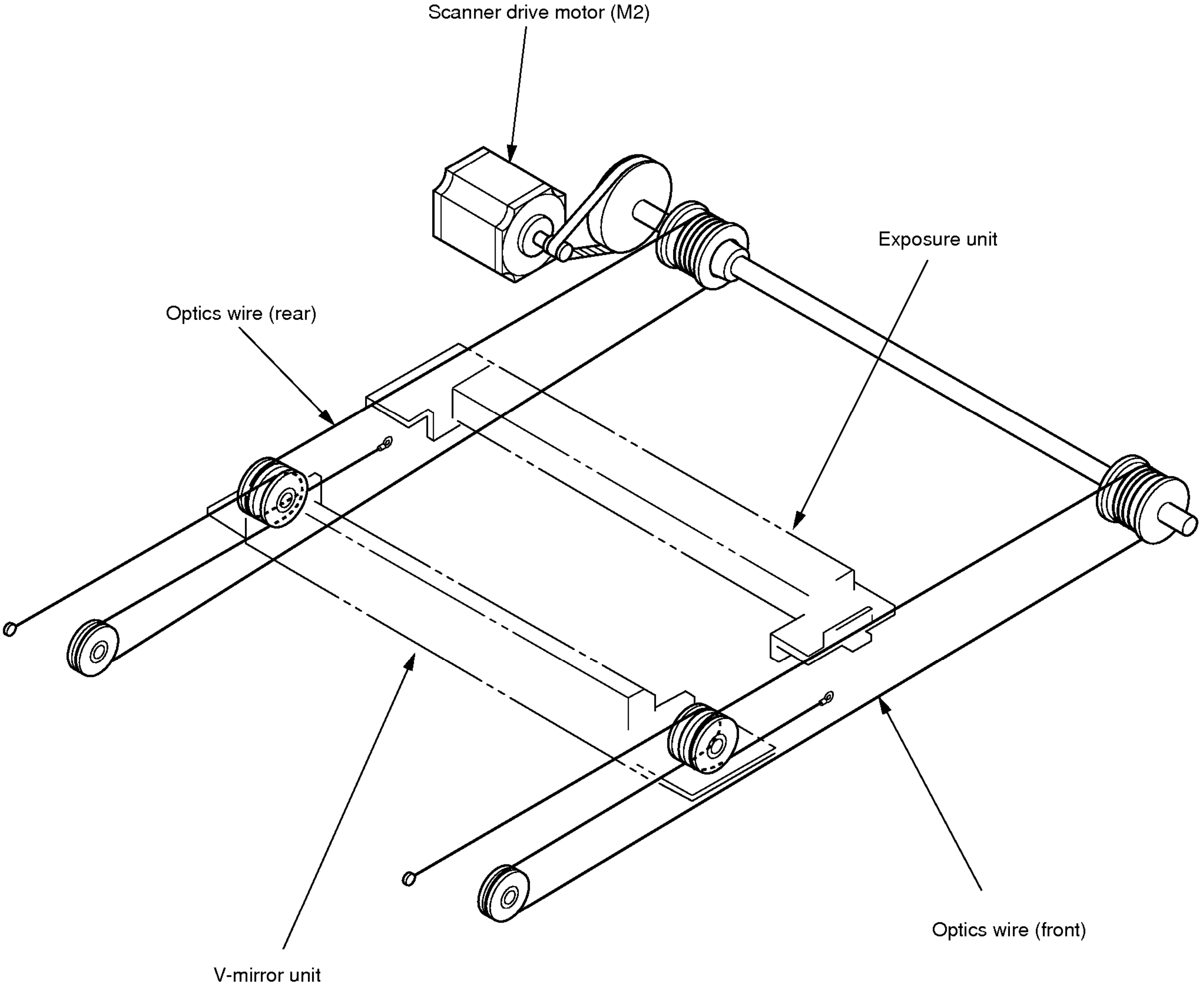
[5] ADU Drive


Registration roller (upper)
Conveyance roller (C)
Conveyance roller (B)
Registration roller (lower)
ADU paper feed motor (M501)
ADU paper feed restart magnet clutch (MC501)
ADU loop magnet clutch (MC502)
Conveyance roller (A)
ADU paper feed magnet clutch (MC503)

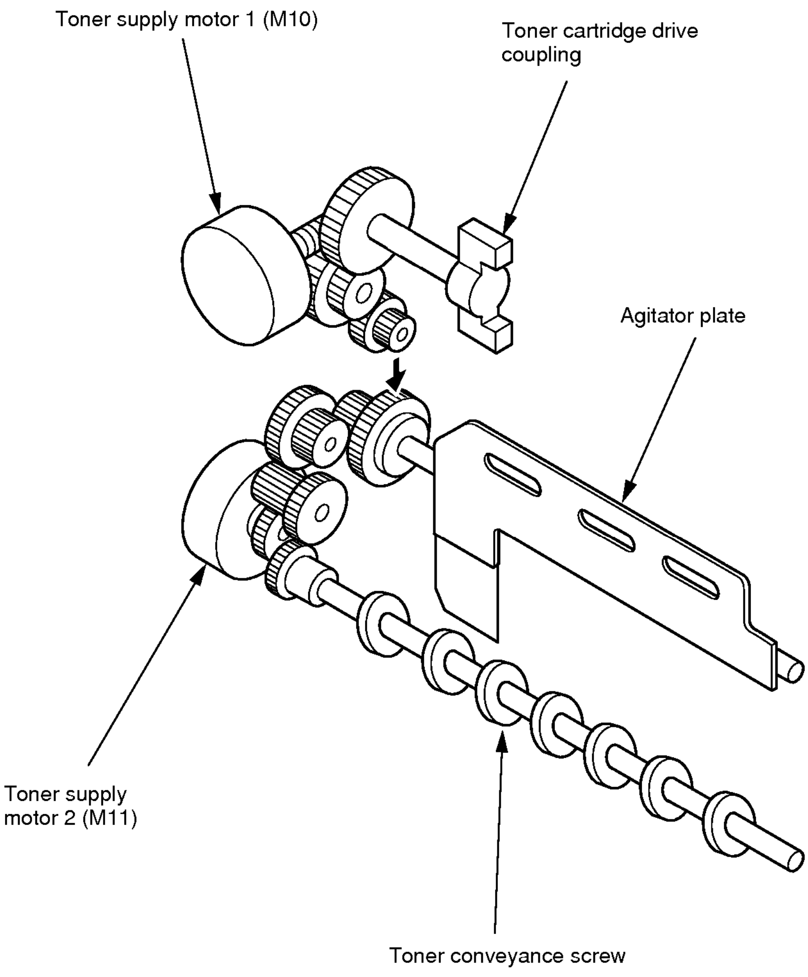
[6] Reversal / Paper Exit Drive


Reversal/paper exit motor (M12)
Gate solenoid (SD5)
Paper exit turn back rollers
Turn back rollers
Paper exit rollers
Switching guide
Conveyance rollers

[7] Read Unit Drive

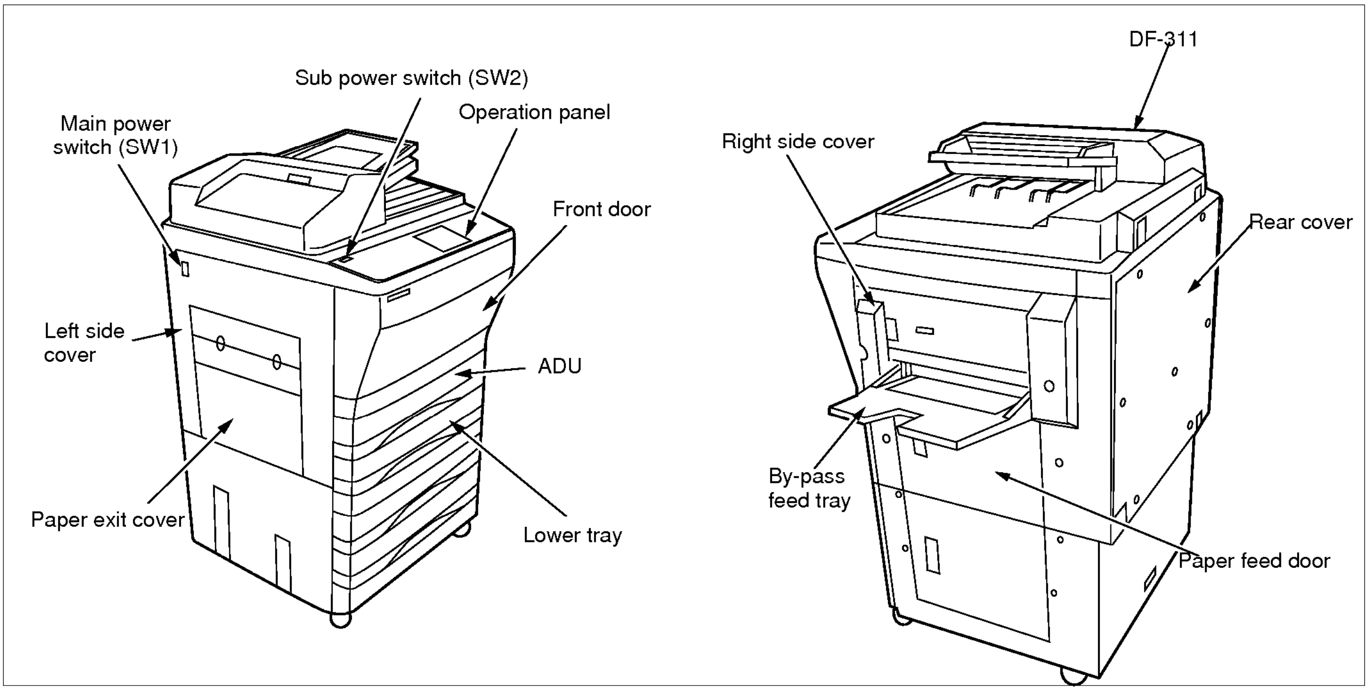

Scanner drive motor (M2)
Exposure unit
Optics wire (rear)
Optics wire (front)
V-mirror unit

[8] Toner Supply Drive


Toner supply motor 1 (M10)
Toner cartridge drive coupling
Agitator plate
Toner supply motor 2 (M11)
Toner conveyance screw

EXTERNAL SECTION

[1] Construction


Sub power switch (SW2)
Operation panel
Main power switch (SW1)
Front door
Left side cover
ADU
Paper exit cover
Lower tray
DF-311
Right side cover
Rear cover
By-pass feed tray
Paper feed door

[2] Disassembly and Re-assembly

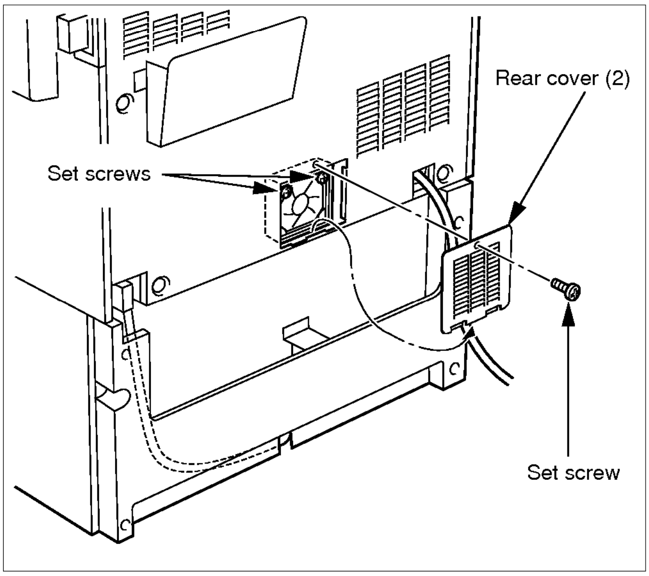
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

1. Replacing the Toner Filter

a. Procedure

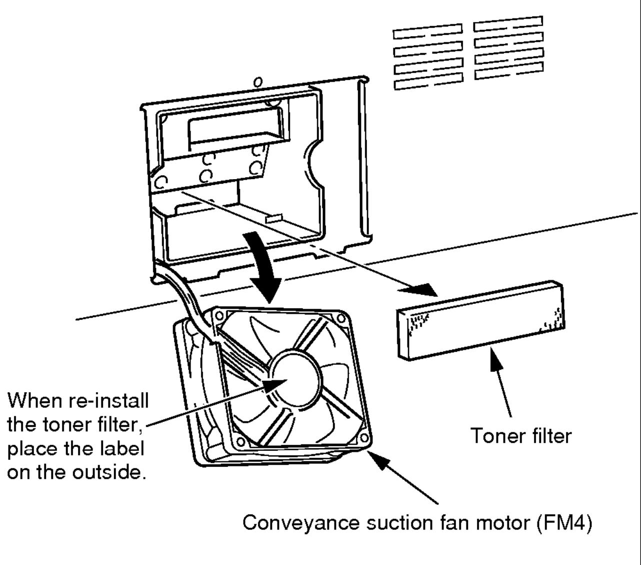
(1) Remove the one set screw, then remove the rear cover (2).

(2) Remove the two set screw holding the conveyance suction fan motor (FM4).


Rear cover (2)
Set screws
Set screw

(3) Pull out the conveyance suction fan motor (FM4) towards you. Do not strain the wires during this process.

(4) Replace the toner filter.

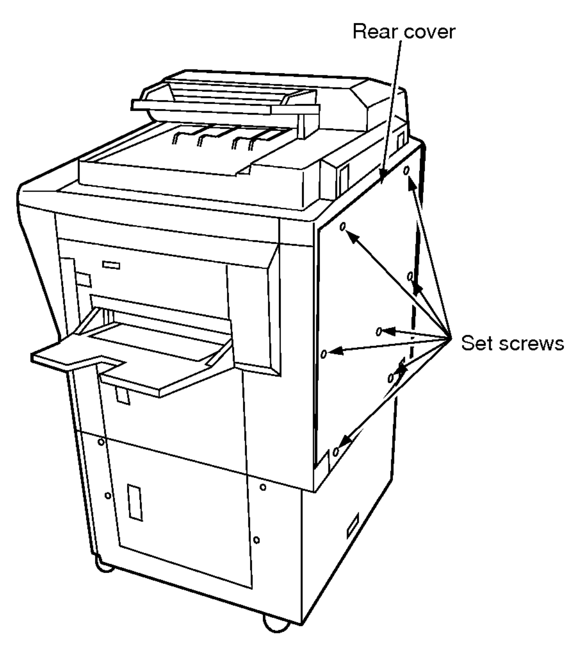

When re-install the toner filter, place the label on the outside.
Toner filter
Conveyance suction fan motor (FM4)

(5) Re-install the toner filter in the opposite sequence to removal.

2. Removing and Re-installing the Rear Cover

a. Procedure

(1) Remove the seven set screws, then remove the rear cover.

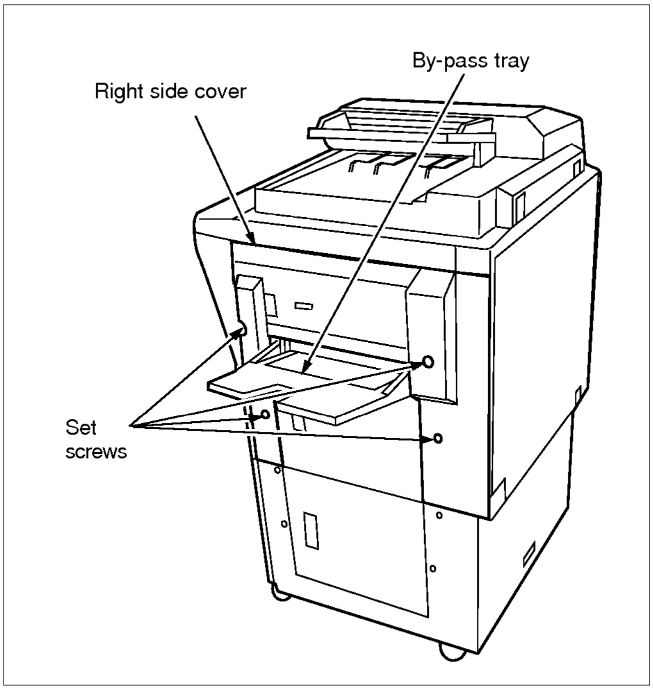

Rear cover
Set screws

(2) Re-install the rear cover in the opposite sequence to removal.

3. Removing and Re-installing the Right Side Cover

a. Procedure

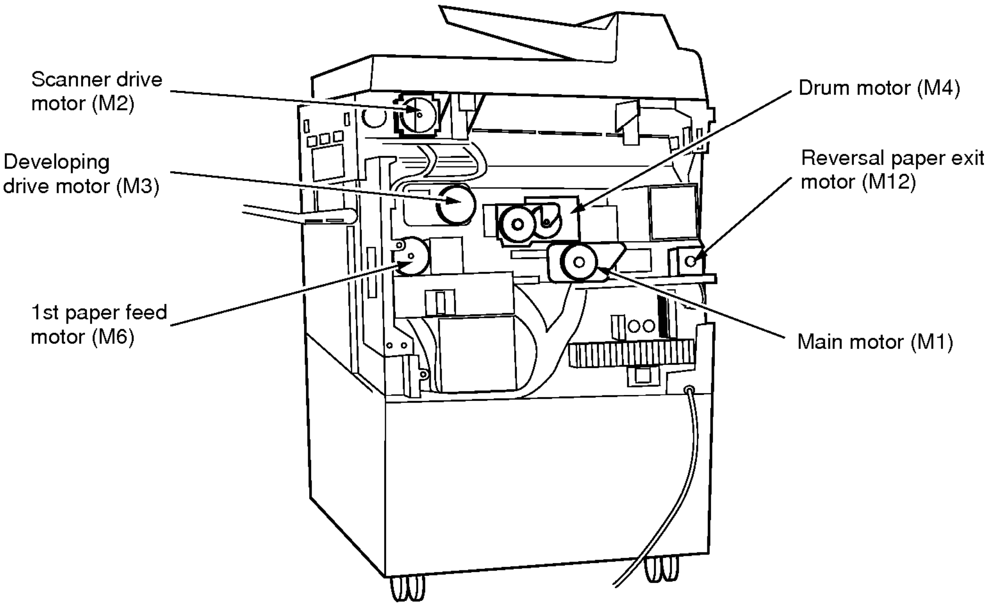
(1) Pull out the ADU and lower tray, and open the front door.
(2) Open the by-pass tray.
(3) Loosen the four set screws, then remove the right side cover.


By-pass tray
Right side cover
Set
screws

(4) Re-install the right side cover in the opposite sequence to removal.

DRIVE SECTION

[1] Construction

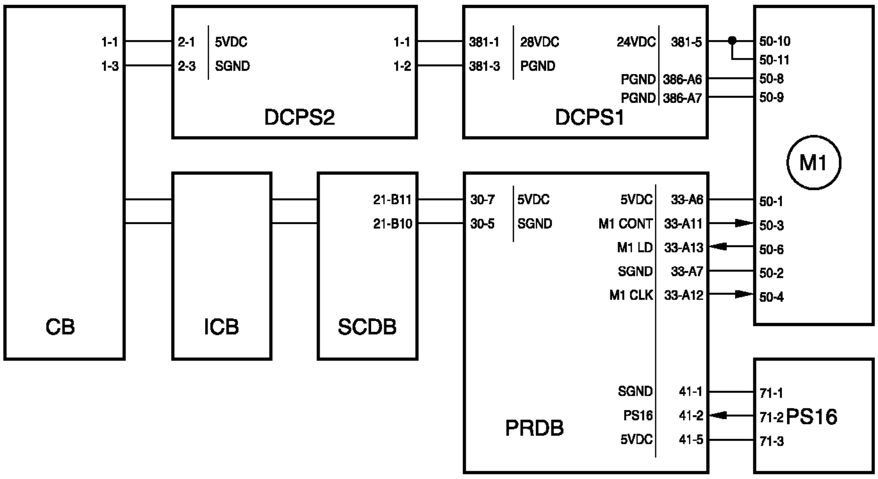

Scanner drive motor (M2)
Developing drive motor (M3)
1st paper feed motor (M6)
Drum motor (M4)
Reversal paper exit motor (M12)
Main motor (M1)

[2] Mechanism

	Mechanisms	Methods
*1	Drum drive	Gear drive
*1	Developing drive	Gear drive
	1st paper feed drive	Timing belt + gear drive
	2nd paper feed, conveyance and fixing drive	Gear drive
	ADU drive	Timing belt + gear drive
	Reversal/paper exit drive	Timing belt + gear drive

***1: Separation of the different parts of the drive system**
The drum and developing agitator of this machine are driven by separate motors in order to improve the serviceability of the drum unit and also to improve the developing performance.

[3] M1 (main) Control


CB
1-1
1-3
DCPS2
2-1 5VDC
2-3 SGND
1-1
1-2
DCPS1
381-1 28VDC
381-3 PGND
24VDC 381-5
PGND 386-A6
PGND 386-A7
M1
50-10
50-11
50-8
50-9
50-1
50-3
50-6
50-2
50-4
ICB
SCDB
21-B11
21-B10
PRDB
30-7 5VDC
30-5 SGND
5VDC 33-A6
M1 CONT 33-A11
M1 LD 33-A13
SGND 33-A7
M1 CLK 33-A12
SGND 41-1
PS16 41-2
5VDC 41-5
PS16
71-1
71-2
71-3

M1 (main) is controlled by the PRDB (Printer drive board).

1. Operation

M1 is a 24 V drive DC motor which drives the conveyance section, 2nd paper feed section, fixing section and conveyance belt. M1 is PLL-controlled by feedback signals from a speed sensor installed inside M1 itself, maintaining it at a constant speed.

M1 goes ON after the specified time from when the Start print button is pressed, and goes OFF again after the specified time from PS16 (registration) going OFF at the final copy exit.

During warm-up, M1 rotates, causing the fixing rollers to rotate.

2. Signals

a. Input signal

(1) M1 LD (M1 → PRDB)
M1 rotational status detection signal
This signal becomes [L] when M1 reaches the set speed.

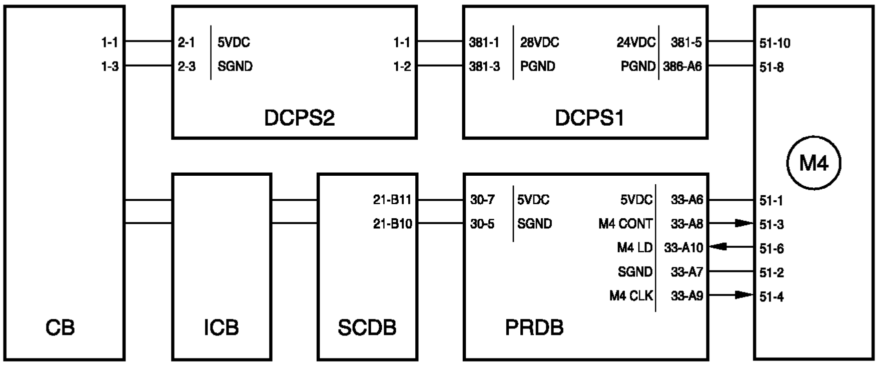
(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) M1 CONT (PRDB → M1)
M1 drive control signal
[L]: M1 ON
[H]: M1 OFF

(2) M1 CLK (PRDB → M1)
Reference clock signal for controlling the speed of M1

[4] M4 (drum) control


1-1
1-3
2-1
2-3
5VDC
SGND
1-1
1-2
DCPS2
381-1
381-3
28VDC
PGND
24VDC
PGND
381-5
386-A6
DCPS1
51-10
51-8
M4
21-B11
21-B10
30-7
30-5
5VDC
SGND
5VDC
M4 CONT
M4 LD
SGND
M4 CLK
33-A6
33-A8
33-A10
33-A7
33-A9
51-1
51-3
51-6
51-2
51-4
CB
ICB
SCDB
PRDB

M4 (drum) is controlled by the PRDB (Printer drive board).

1. Operation

M4 is a 24 V drive DC motor which drives the drum, toner conveyance screw, toner recycle screw and separation claw swing section.
M4 is PLL-controlled by feedback signal from a speed sensor installed inside M4 itself, maintaining it at a constant speed.
M4 goes ON when the Start button is pressed, and goes OFF again when the final copy has been exited.

2. Signals

a. Input signal

(1) M4 LD (M4 → PRDB)
M4 rotational status detection signal
This signal becomes [L] when M4 reaches the set speed.

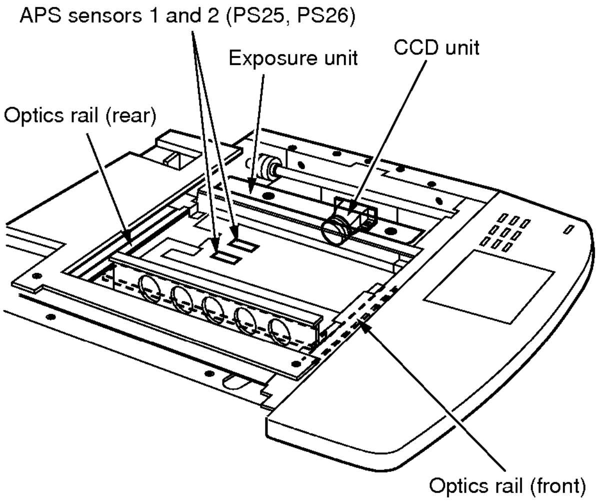
b. Output signals

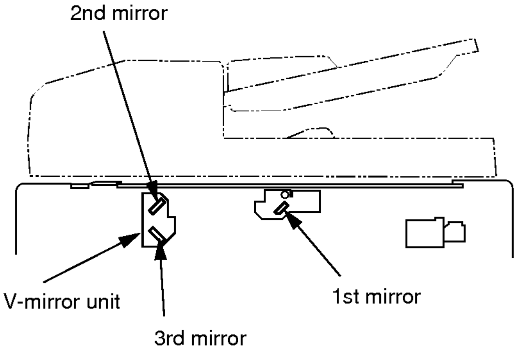
(1) M4 CONT (PRDB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

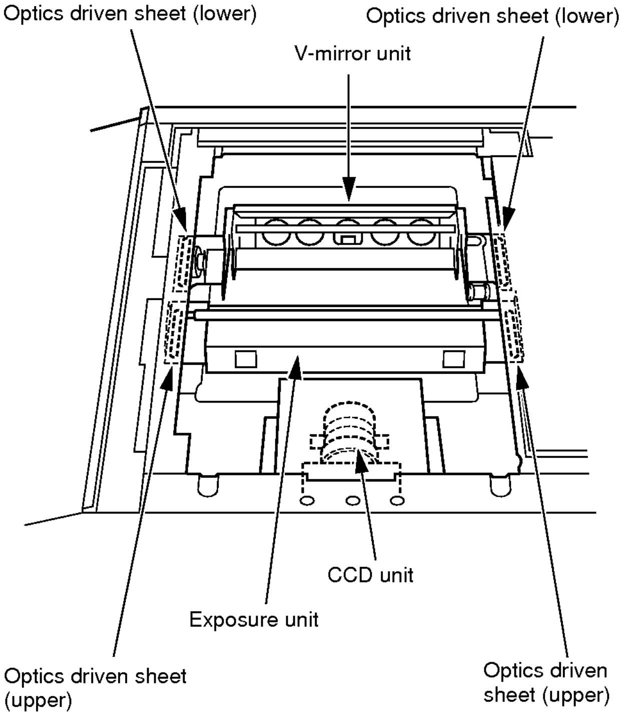
(2) M4 CLK (PRDB → M4)
Reference clock signal for controlling the speed of M4

READ SECTION

[1] Construction


APS sensors 1 and 2 (PS25, PS26)
Exposure unit
CCD unit
Optics rail (rear)
Optics rail (front)


2nd mirror
V-mirror unit
1st mirror
3rd mirror


Optics driven sheet (lower)
Optics driven sheet (lower)
V-mirror unit
CCD unit
Exposure unit
Optics driven sheet (upper)
Optics driven sheet (upper)

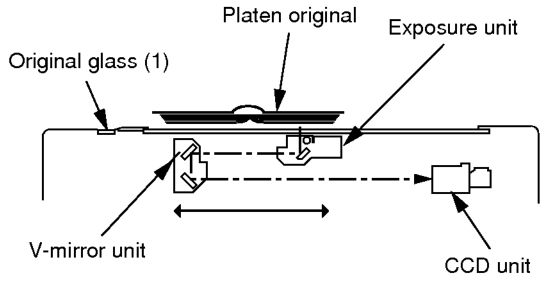
[2] Mechanisms

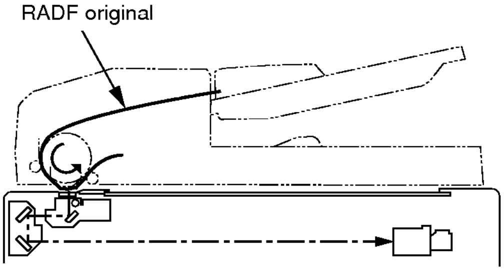
Mechanisms	Methods
Light source	Xenon lamp
Exposure	Slit exposure
*1 Scanning	Platen original scanning: 1st, 2nd and 3rd mirror shift RADF original scanning: Fixed light source / Original moving
Lamp power supply	Lamp cord
Cooling of optics	Cooling of intake air using a fan

***1: Platen original scanning and RADF original scanning**

a. An original on the original glass is read while moving the exposure unit and V mirror unit.

b. When reading a RADF original, the exposure unit and V mirror unit shift to under the original glass (1). Original reading takes place with the original passing over the stationary exposure unit.

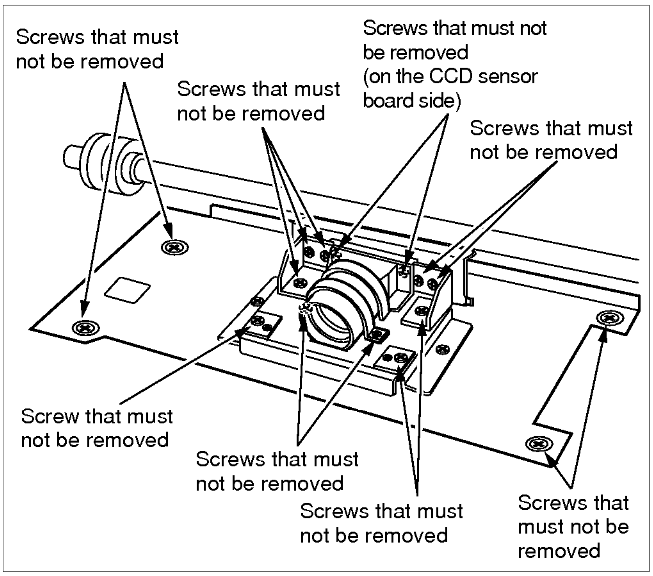

Platen original
Exposure unit
Original glass (1)
V-mirror unit
CCD unit


RADF original

[3] Disassembly and Re-assembly

1. Screws that must not be removed

a. The 16 set screws of the CCD unit


Screws that must not be removed
Screws that must not be removed
Screws that must not be removed (on the CCD sensor board side)
Screws that must not be removed
Screw that must not be removed
Screws that must not be removed
Screws that must not be removed
Screws that must not be removed

2. Removing and Re-installing the CCD Unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

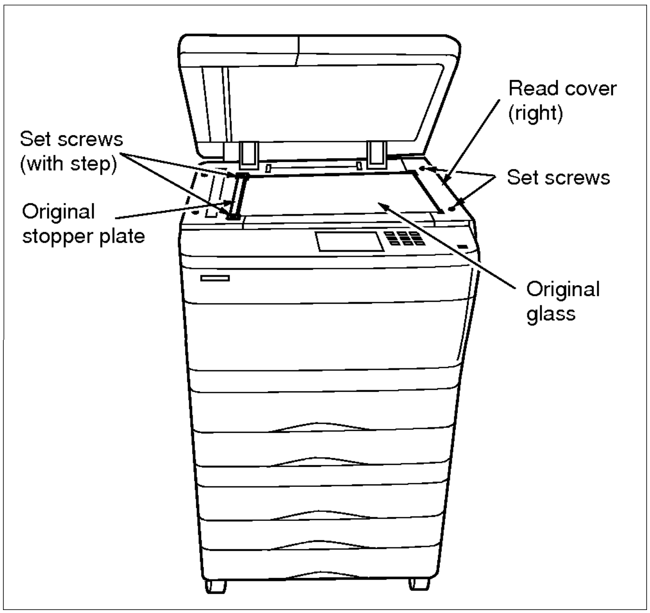
Caution: Be sure to perform image adjustment after installing the CCD unit. (For details, refer to "Adjustment section".)

a. Procedure

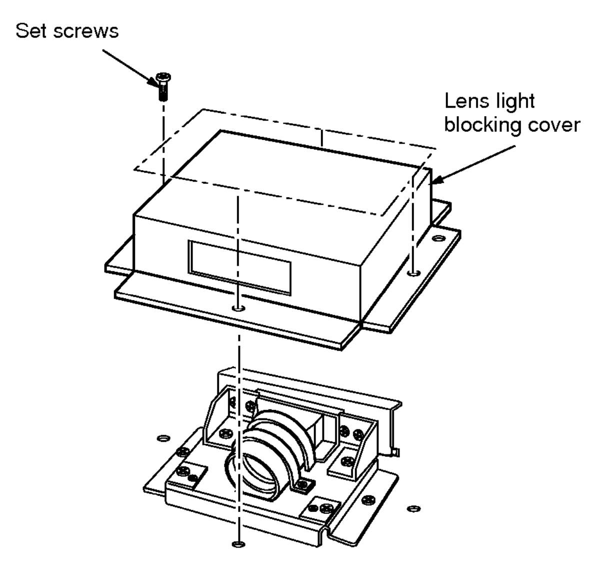
(1) Remove the two set screws (with step), then remove the original stopper plate.

(2) Remove the two set screws, then remove the read cover (right).

(3) Remove the original glass.

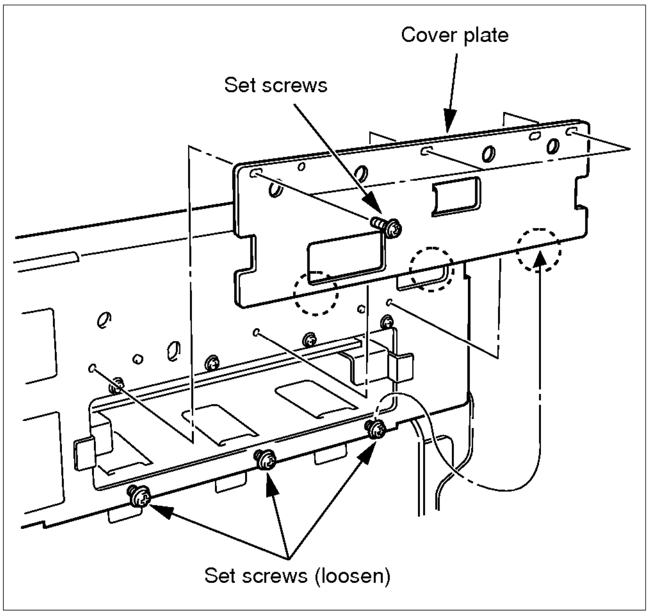

Read cover (right)
Set screws (with step)
Set screws
Original stopper plate
Original glass

(4) Remove the four set screws, then remove the lens light blocking cover.

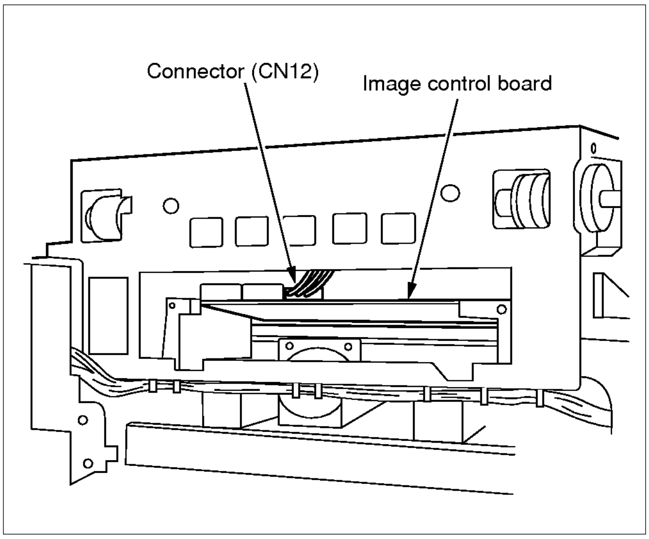

Set screws
Lens light blocking cover

(5) Remove the right side cover. (Refer to “External section”)

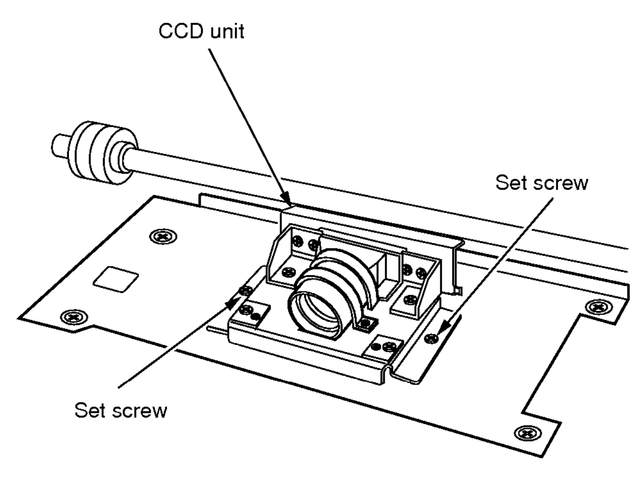
(6) Loosen the three lower set screws and remove the three upper set screws, then remove the cover plate.


Cover plate
Set screws
Set screws (loosen)

(7) Disconnect the one connector (CN12) from the image control board.


Connector (CN12)
Image control board

(8) Remove the two set screws, then remove the CCD unit.


CCD unit
Set screw
Set screw

(9) Re-install the CCD unit in the opposite sequence to removal.

3. Replacing the Exposure Lamp

⚠Caution:

1. **Be sure that the power cord has been unplugged from the power outlet.**
2. **DO NOT touch the glass of the exposure lamp with bare hands.**

Caution:

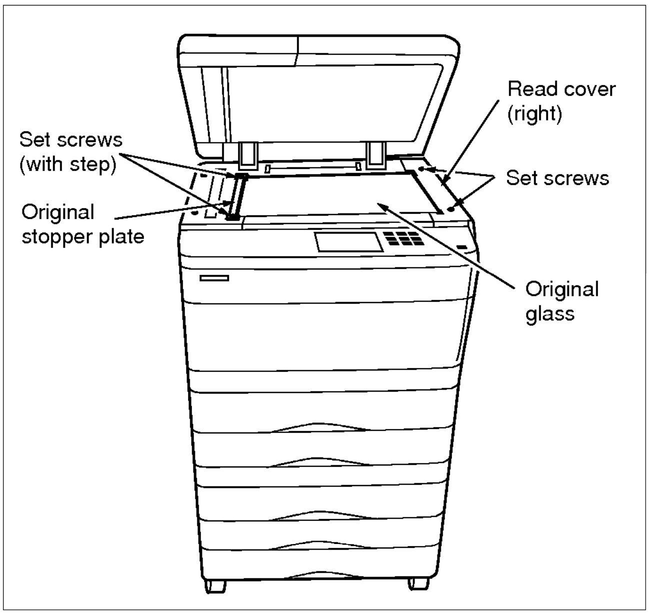
1. Be sure to check the image after installing the exposure lamp. (For details, refer to "Adjustment section".)
2. When re-installing the original stopper plate ensure that the film attached to the original glass (1) is on top of the glass stopper plate.

a. Procedure

(1) Remove the two set screws (with step), then remove the original stopper plate.

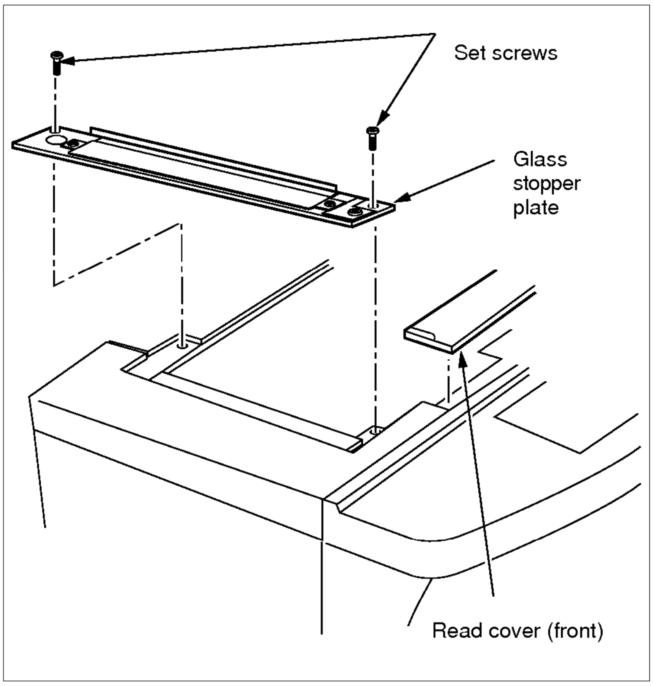
(2) Remove the two set screws, then remove the read cover (right).

(3) Remove the original glass.


Set screws (with step)
Original stopper plate
Read cover (right)
Set screws
Original glass

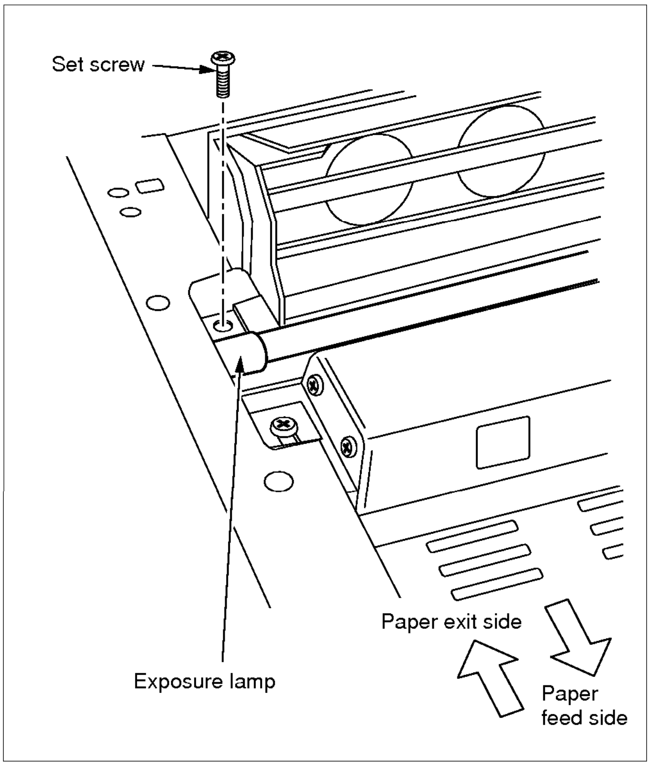
(4) Remove the read cover (front).

(5) Remove the two set screws, then remove the glass stopper plate.

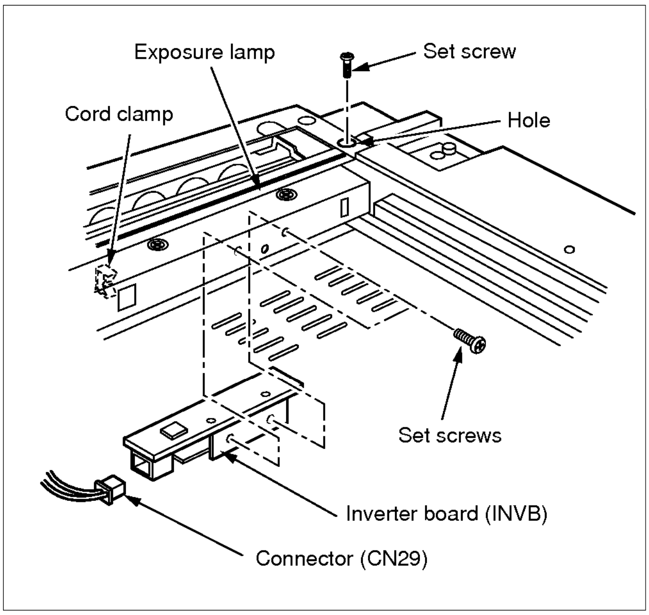

Set screws
Glass stopper plate
Read cover (front)

(6) Move the exposure unit to the notch of the main body frame on the paper exit side.

(7) Remove the set screw holding the exposure lamp on the front side.


Set screw
Exposure lamp
Paper exit side
Paper feed side

(8) Move the exposure unit to the hole of the main body frame on the paper exit side (rear).
(9) Remove the two set screws, then remove the inverter board (INVB).
(10) Disconnect the connector (CN29) from the inverter board.
(11) Free the wiring of the exposure lamp from the cord clamp.
(12) Remove the set screw holding the exposure lamp on the rear side, then remove the exposure lamp.


Exposure lamp
Set screw
Cord clamp
Hole
Set screws
Inverter board (INVB)
Connector (CN29)

(13) Re-install the exposure lamp in the opposite sequence to removal.

4. Removing and Re-installing the Exposure Unit

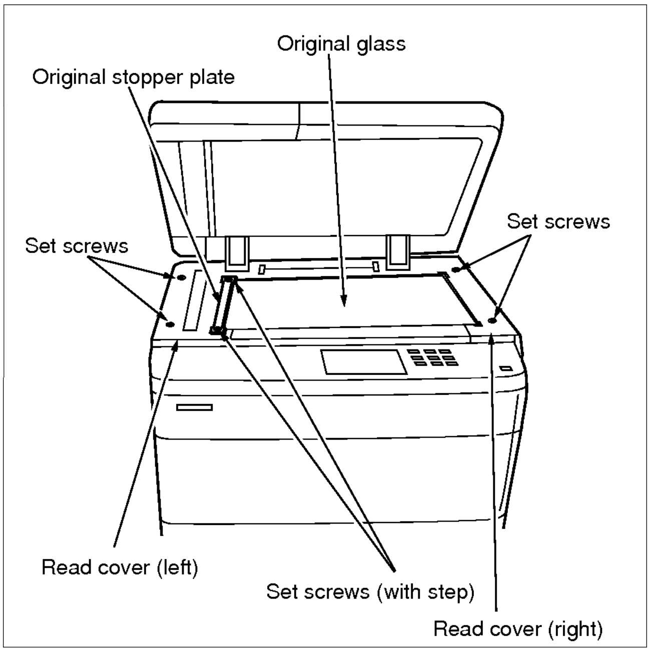
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

Caution:

1. Use a optics positioning jig when installing the exposure unit.
2. Be sure to perform image adjustment after installing the exposure unit. (For details, refer to “Adjustment section”.)
3. When re-installing the original stopper plate ensure that the film attached to the original glass (1) is on top of the glass stopper plate.
4. Before installing the original glass (1), be sure to clean it. (To prevent the image defect)

a. Removal procedure

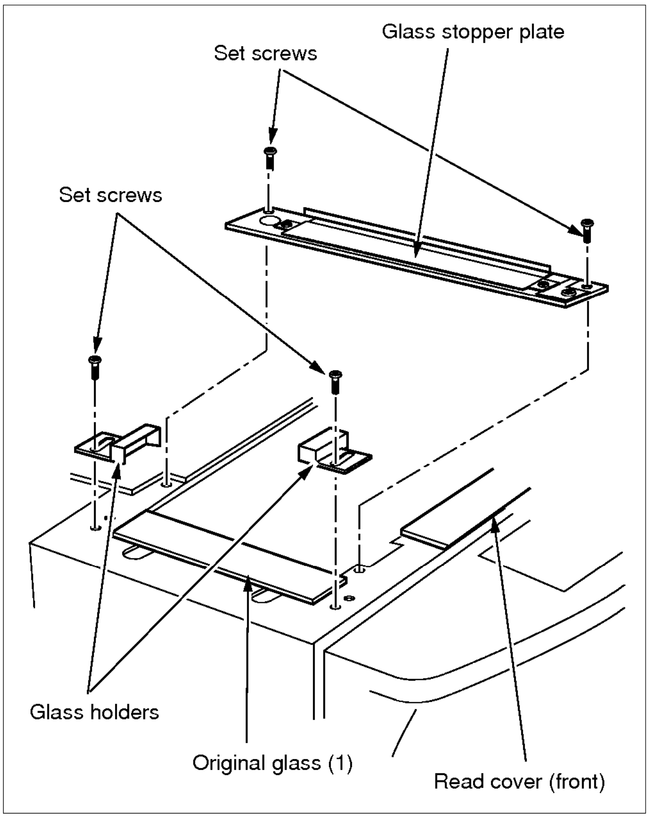
(1) Remove the two set screws (with step), then remove the original stopper plate.
(2) Remove the two set screws, then remove the read cover (right).
(3) Remove the original glass.
(4) Remove the two set screws, then remove the read cover (left).
(5) Remove the read cover (front).


Original glass
Original stopper plate
Set screws
Set screws
Read cover (left)
Set screws (with step)
Read cover (right)

(6) Remove the two set screws, then remove the two glass holders and original glass (1).

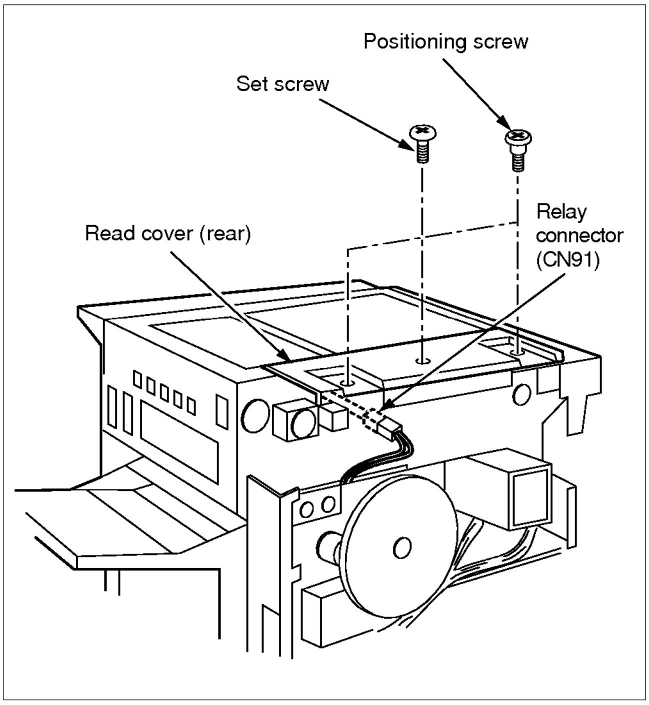
(7) Remove the two set screws, then remove the glass stopper plate.

(8) Remove the seven set screws, then remove the rear cover.


Glass stopper plate
Set screws
Set screws
Glass holders
Original glass (1)
Read cover (front)

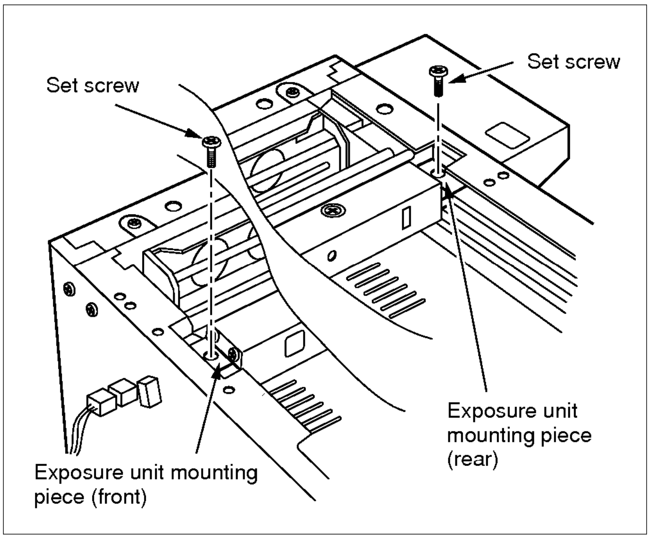
(9) Remove the RADF. (Refer to the service handbook of the DF-311)

(10) Remove the two positioning screws and one set screw, disconnect the relay connector (CN91), then remove the read cover (rear).

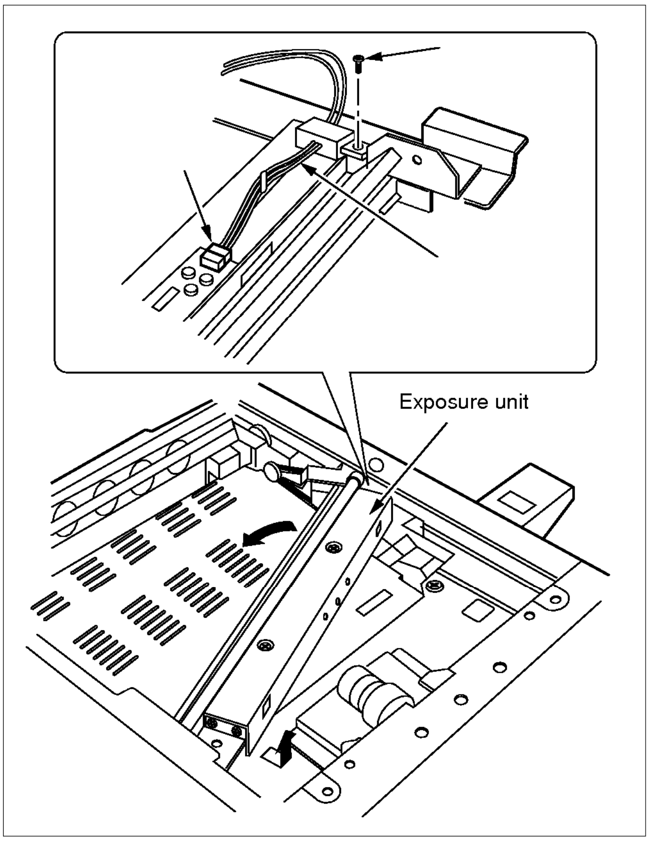

Positioning screw
Set screw
Read cover (rear)
Relay connector (CN91)

(11) Move the exposure unit to the notch of the main body frame on the paper exit side.

(12) Remove the one set screw each, then remove the two exposure unit mounting pieces (front and rear) from the exposure unit.

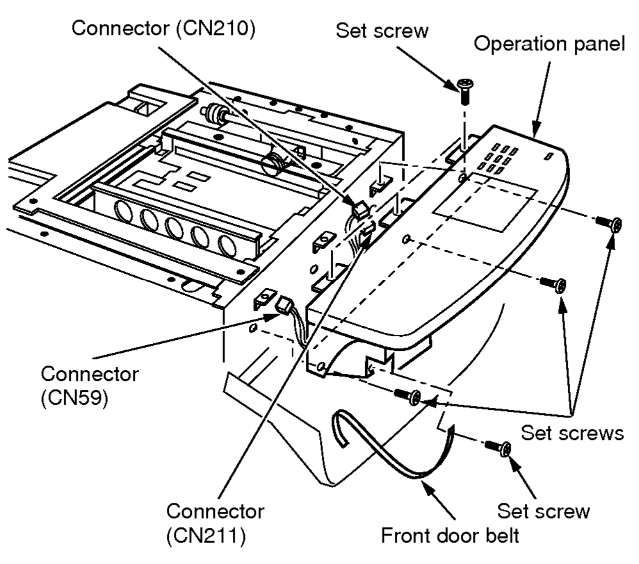

Set screw
Set screw
Exposure unit mounting piece (rear)
Exposure unit mounting piece (front)

(13) Slide the exposure unit diagonally as shown in the figure, then remove the exposure unit from main body.
(14) Disconnect the connector (CN28) from the inverter board (INVB).
(15) Remove the one set screw, then remove the lamp cord from the exposure unit.

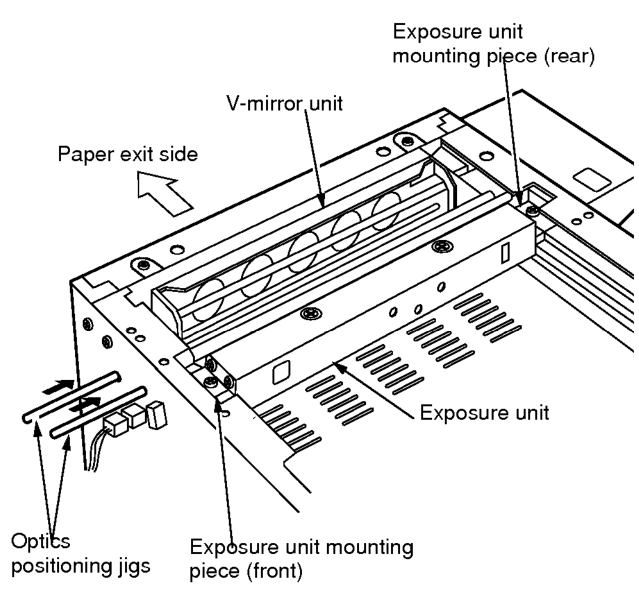

Exposure unit

b. Re-installation procedure

(1) Open the front door and open the toner supply unit.
(2) Remove the one set screw holding the front door belt on the left side.
(3) Remove the six set screws and disconnect the three connectors (CN59, CN210, CN211), then remove the operation panel.


Connector (CN210)
Set screw
Operation panel
Connector (CN59)
Set screws
Connector (CN211)
Set screw
Front door belt

(4) Install the exposure unit to the main body.
(5) Insert the two exposure unit mounting pieces (front and rear) into the slits of the exposure unit.
(6) Move the V-mirror unit to the paper exit side, then insert the two optics positioning jigs into the exposure unit mounting position from the front.
At this time, pass through the optics positioning jigs into each unit and fasten the exposure unit and V-mirror unit.


Exposure unit mounting piece (rear)
V-mirror unit
Paper exit side
Exposure unit
Optics positioning jigs
Exposure unit mounting piece (front)

(7) Fasten the exposure unit mounting pieces (front and rear) with the one set screw each.

(8) Remove the optics positioning jigs and install the operation panel.

(9) The reminder of the installation procedure is in the opposite sequence to removal.

5. Removing the optics wire

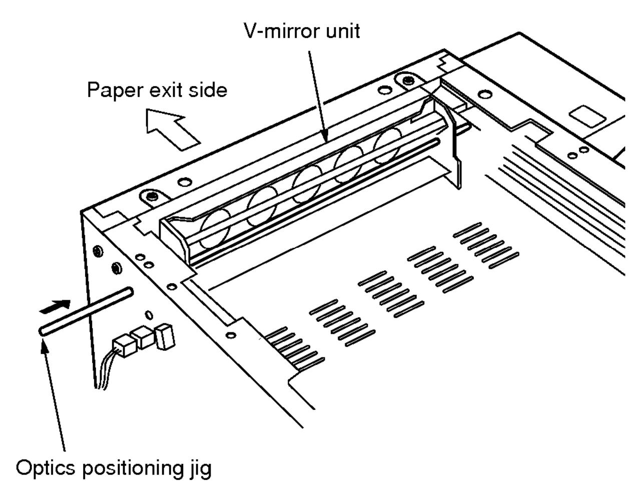
Caution: Be sure to perform image adjustment after replacing or re-installing the wire. (For details, refer to “Adjustment section”.)

a. Procedure

(1) Remove the exposure unit.

(2) Remove the operation panel.

(3) Move the V-mirror unit to the paper exit side, then insert the optics positioning jig into the V-mirror unit mounting position from the front.
At this time, pass through the optics positioning jig into the V-mirror unit and fasten the V-mirror unit.

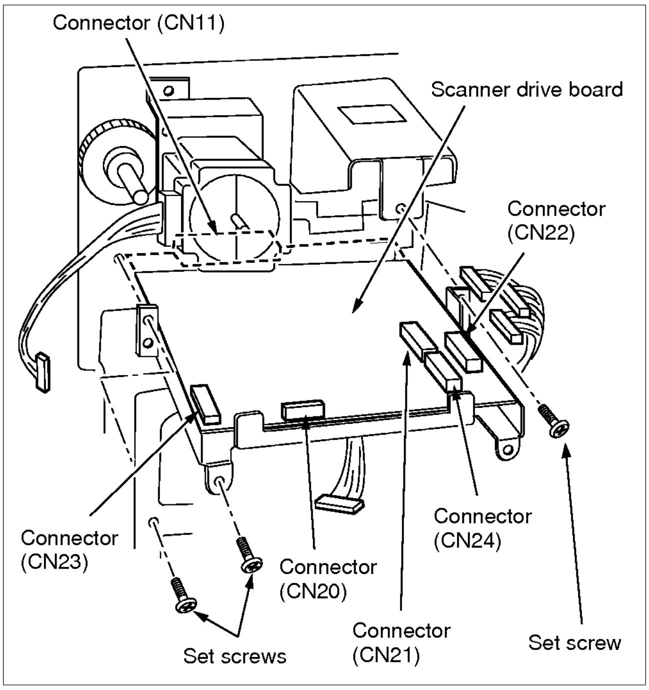


(4) Disconnect the five connectors (CN20 - CN24) and remove the three set screws from the scanner drive board.

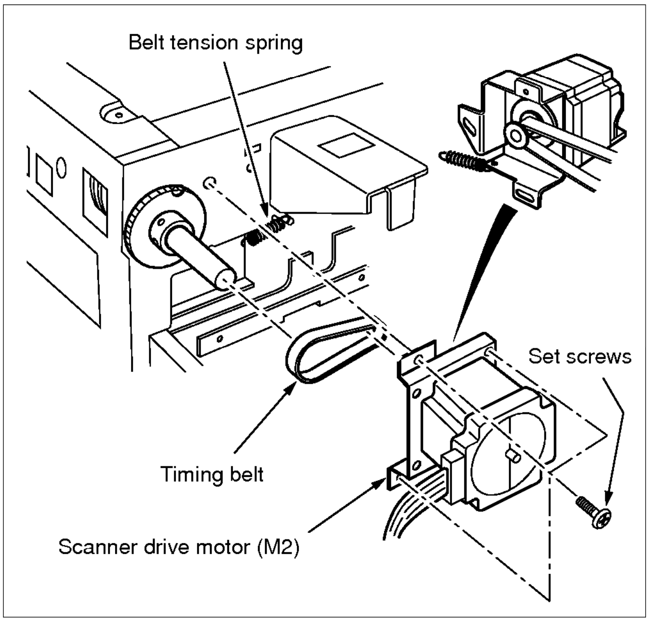
(5) Free the wiring from the two cord clamps on the rear side of the scanner drive board.

(6) Pull out the scanner drive board and disconnect the connector (CN11) on the image control board, then remove the scanner drive board.

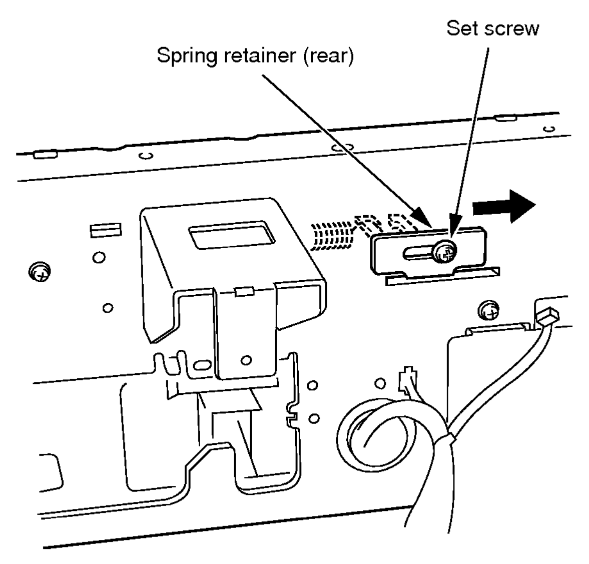
Caution: Be careful not to drop screws etc. between the boards at the rear of the main body.


Connector (CN11)
Scanner drive board
Connector (CN22)
Connector (CN23)
Connector (CN24)
Connector (CN20)
Connector (CN21)
Set screws
Set screw

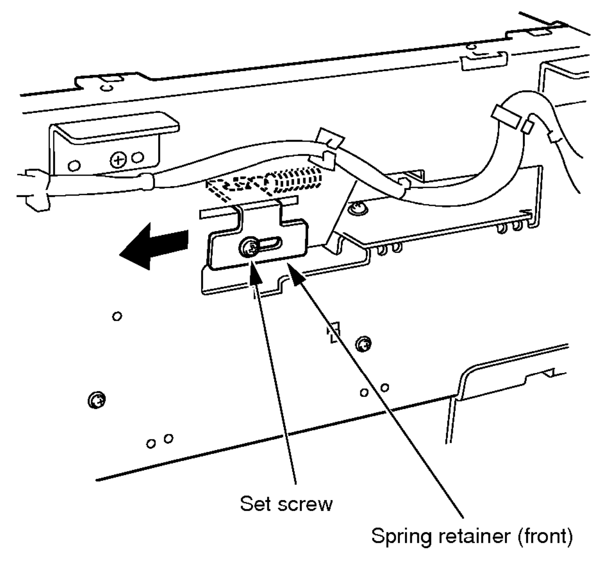
(7) Remove the three set screws and the belt tension spring, then remove the scanner drive motor (M2) and timing belt.


Belt tension spring
Set screws
Timing belt
Scanner drive motor (M2)

(8) Loosen the set screw holding the spring retainer (rear), slide it to the paper exit side while pressing it with a flat-blade screwdriver etc. to fix it again with the set screw.

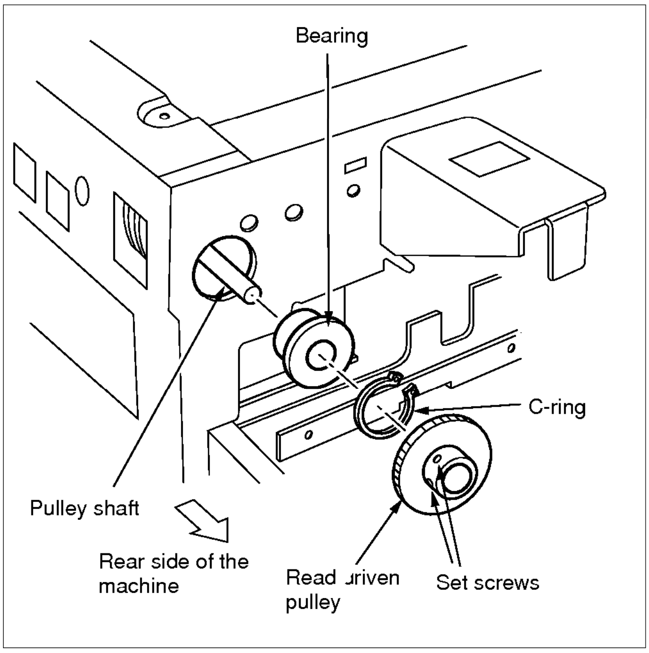

Set screw
Spring retainer (rear)

(9) Slide the spring retainer (front) to the paper exit side to fix it in the same way.

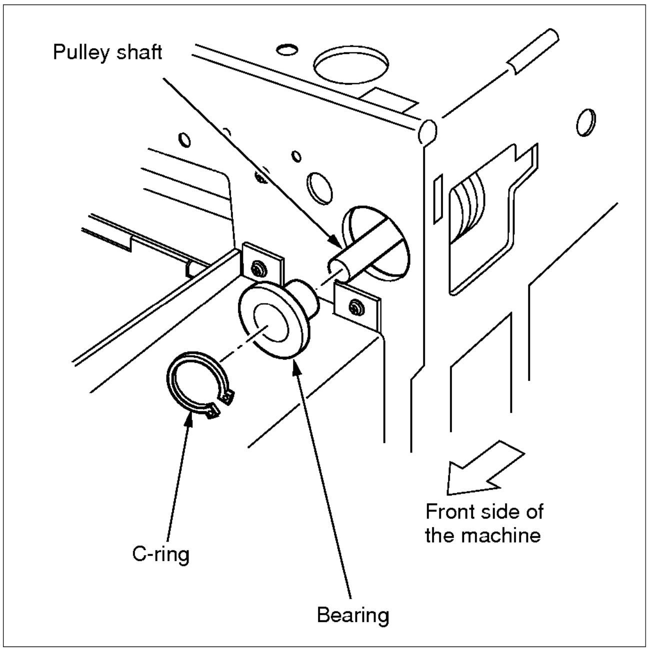

Set screw
Spring retainer (front)

(10) Remove the two set screws, then remove the read driven pulley.

(11) Remove the C-ring and bearing on the rear side of the machine. Be careful not to scratch the pulley shaft.


Bearing
C-ring
Pulley shaft
Rear side of the machine
Read driven pulley
Set screws

(12) Remove the one C-ring and bearing on the front side of the machine from the pulley shaft in the same way.


Pulley shaft
C-ring
Bearing
Front side of the machine

(13) Remove the two optics wires (front and rear).

(14) Remove the CCD unit.

(15) Remove the pulley shaft from the main body. At this time, if the leading edge of the set screw holding the optics rail contacts with the shaft, loosen the set screw.

6. Installing the optics wire

Caution:

1. When winding the wire around the pulley, be sure to run the wire tightly to ensure that it does not ride up the side of the pulley.
2. When re-installing or replacing the optics wire, be sure to use the optics positioning jig.
3. Be sure to perform image adjustment after replacing or re-installing the wire. (For details, refer to “Adjustment section”.)

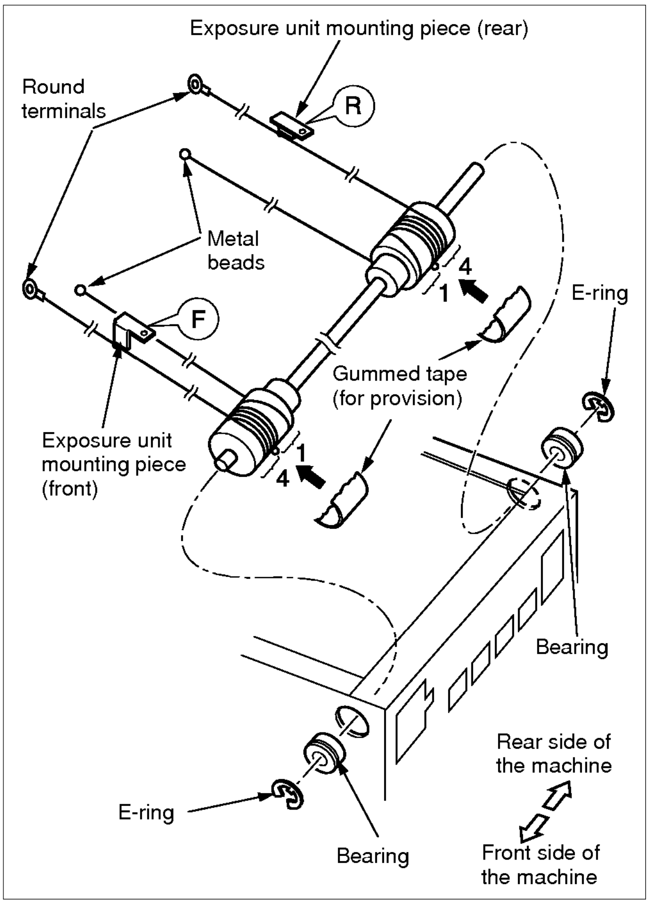
(1) Insert the metal bead at the mid-point of the optics wire (front) into the mounting hole of the drive pulley, then wind four turns around the pulley to the outside, and one turn to the inside, starting this position.

(a) Use the optics wire marked “F” on the exposure unit mounting piece to the front side and “R” to the rear side.

(b) Wind the optics wire so that the side with the metal bead at the leading edge is inside of the pulley shaft.

(c) Wind the optics wire so that the side with the metal bead at the leading edge passes under the drive pulley.

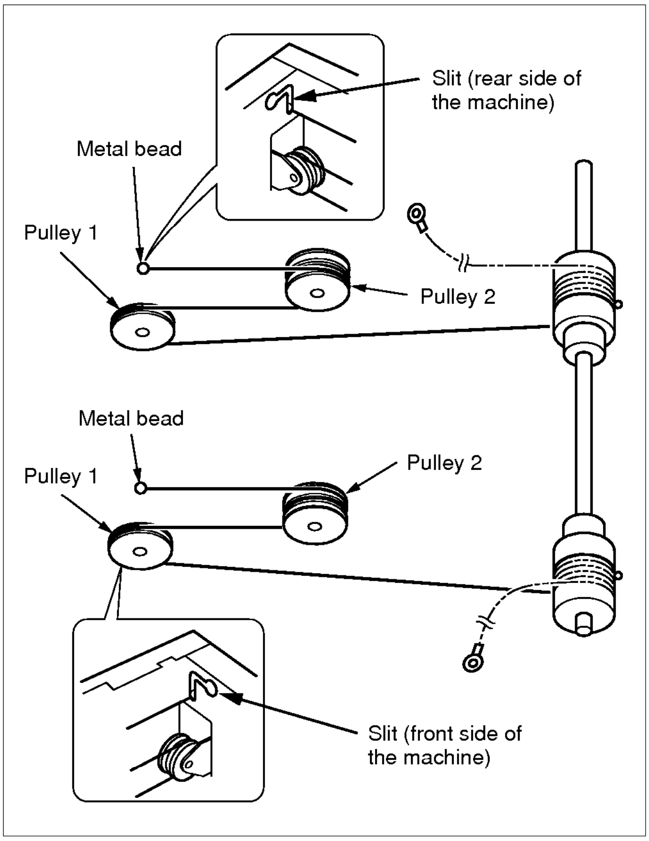
(2) Provisionary fasten the wire to the drive pulley with a gummed tape so that the wire winding is not lost, after that, fix the pulley shaft to the frame with the bearings and E-rings.


Exposure unit mounting piece (rear)
Round terminals
R
Metal beads
4
1
E-ring
F
Gummed tape (for provision)
Exposure unit mounting piece (front)
1
4
Bearing
Rear side of the machine
E-ring
Bearing
Front side of the machine

(3) Pass the optics wire of the metal bead side around the pulley 1 (V-mirror unit) then pass it around the inside slit of the pulley 2 (exposure unit). Pass around the optics wire (rear) at the same procedure.

(4) Remove the optics positioning jig.

(5) Fasten each metal bead at the leading edge of the optics wire (front and rear) to the slits of the main body frame on the paper exit side.

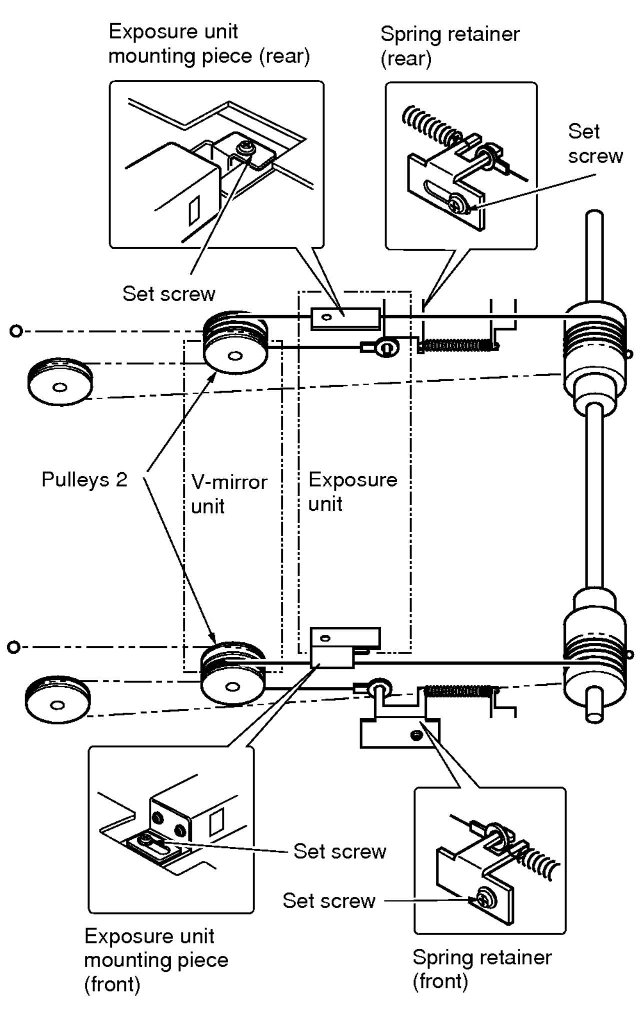

Slit (rear side of the machine)
Metal bead
Pulley 1
Pulley 2
Metal bead
Pulley 2
Pulley 1
Slit (front side of the machine)

(6) Pass the side with the round terminal of the optics wire (front) to the outside of the pulley 2 and hook the round terminal on the spring retainer. Hook the optics wire (rear) in the same way.

(7) Install the exposure unit to the main body.

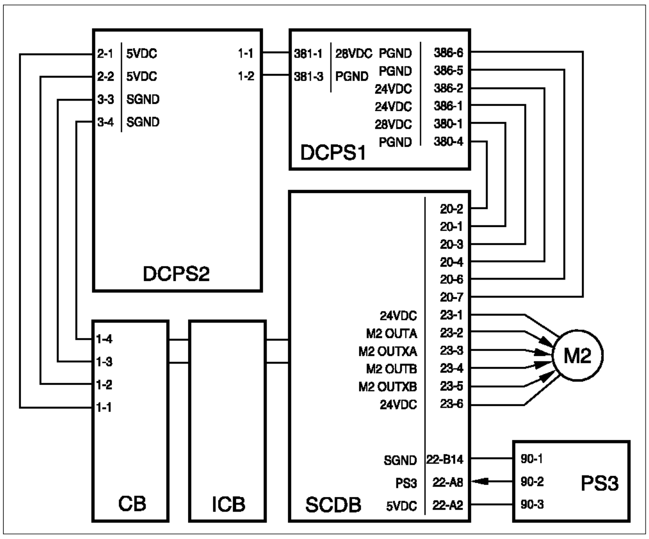
(8) Loosen each set screw fasting the spring retainers.

(9) Fasten each set screw of the spring retainers after moving the exposure unit two or three times.


Exposure unit mounting piece (rear)
Spring retainer (rear)
Set screw
Set screw
Pulleys 2
V-mirror unit
Exposure unit
Set screw
Set screw
Exposure unit mounting piece (front)
Spring retainer (front)

(10) The reminder of the installation procedure is in the opposite sequence to removal.

[4] M2 (scanner drive) Control


2-1 5VDC
2-2 5VDC
3-3 SGND
3-4 SGND
1-1
1-2
DCPS2
381-1 28VDC PGND 386-6
381-3 PGND PGND 386-5
24VDC 386-2
24VDC 386-1
28VDC 380-1
PGND 380-4
DCPS1
20-2
20-1
20-3
20-4
20-6
20-7
24VDC 23-1
M2 OUTA 23-2
M2 OUTXA 23-3
M2 OUTB 23-4
M2 OUTXB 23-5
24VDC 23-6
M2
SGND 22-B14
PS3 22-A8
5VDC 22-A2
90-1
90-2
90-3
PS3
1-4
1-3
1-2
1-1
CB
ICB
SCDB

M2 (scanner drive) is driven by the SCDB (scanner drive board), and is controlled by the ICB (image control board). Related signal is PS3 (optics home position).

1. Operation

a. Operation of M2

M2 is a stepping motor which drives the exposure unit. It rotates in the forward or reverse direction and also changes speed according to the particular scanning control operation. The position of the exposure unit is controlled and monitored by PS3 alone. The drive period and direction of rotation of M2 are controlled by the number of count pulses from when PS3 goes ON or OFF.

The ICB continuously monitor the state of motion of M2. It acquires the control timing related to paper feed from the number of drive count pulses.

The ICB continuously monitors the motion of M2. It acquires the control timing related to paper feed from the number of drive count pulses.

b. Scanning speed of the exposure unit

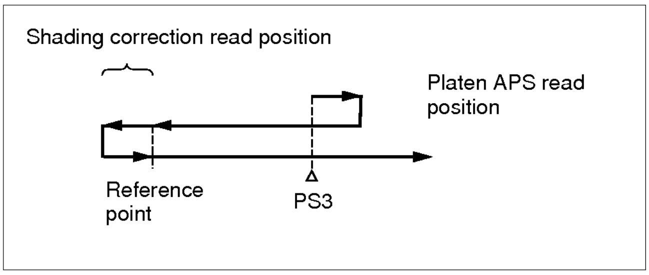
Scanning speed

Magnification	Scanning speed
Forward	210 mm/sec (1:1)
Return	862 mm/sec (Max.)

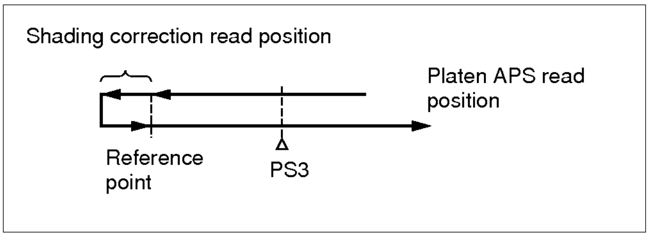
c. Initial operation when power is turned ON

When SW2 (sub power) is turned ON, the exposure unit performs a home position search. The home position search operation differs depending upon whether PS3 is ON or OFF. After the home position search, the exposure unit waits in the platen mode APS read position.

(1) When PS3 is ON


Shading correction read position
Platen APS read position
Reference point
PS3

(2) When PS3 is OFF


Shading correction read position
Platen APS read position
Reference point
PS3

d. Shading correction read operation

The white reference plate is installed at the back of the glass stopper plate and the shading correction is carried out when the SW2 (sub power) is turned on and every scanning job.

e. Exposure scan mode

There are two exposure scanning modes, a platen mode and a DF mode.

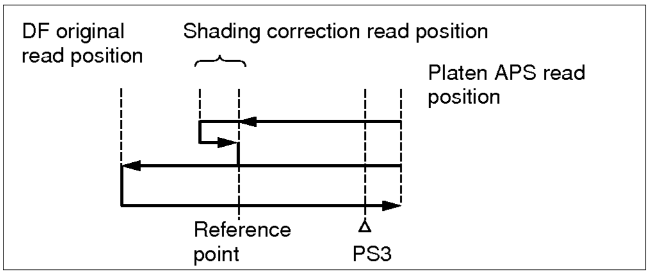
In the platen mode, the exposure unit scans and reads the original in the same way as in a conventional copying machine.

In the DF mode, however, the exposure unit remains fixed in the specified position, and instead the RADF conveys the original, causing it to be read.

f. Scanning operation during DF mode

The read position in the DF mode is on the paper exit side of PS3. While the exposure unit is moving from the standby position (platen APS read position) to the DF read position, the shading correction read operation takes place.

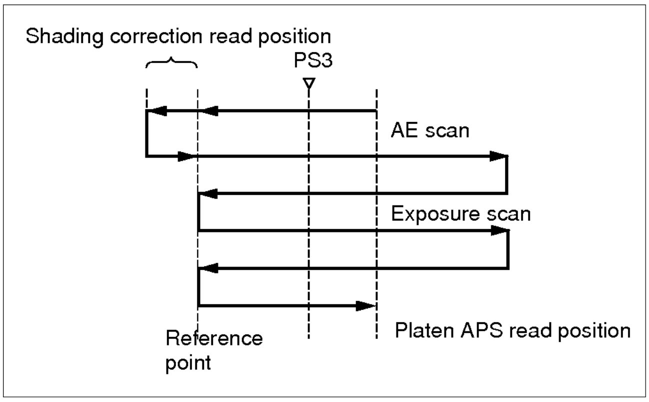
Upon reaching the DF read position, the exposure unit remains there until the original has been read, upon completion of reading, then once again moves to the platen APS read position and goes into a standby status.


DF original
read position
Shading correction read position
Platen APS read
position
Reference
point
PS3

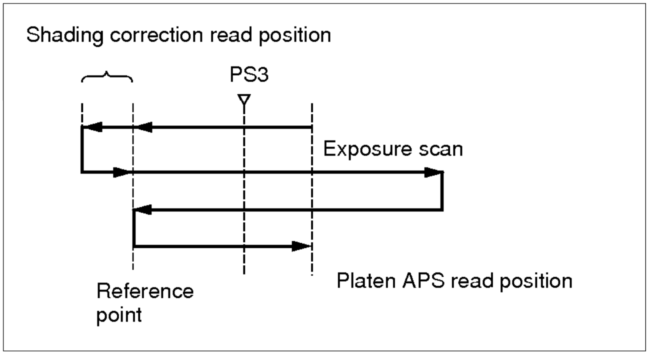
g. Scanning operation during platen copy mode

In the platen mode, the motion of the exposure unit differs depending upon whether the copy density mode is set to AE or Manual. In both cases, a shading correction read operation takes place before the exposure scanning operation starts. After completion of the exposure scanning, then the exposure unit moves to the APS read position and goes into a standby status.

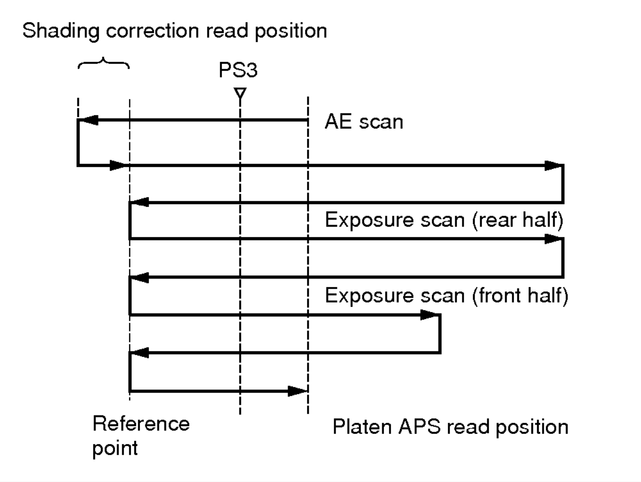
(1) AE mode


Shading correction read position
PS3
AE scan
Exposure scan
Reference
point
Platen APS read position

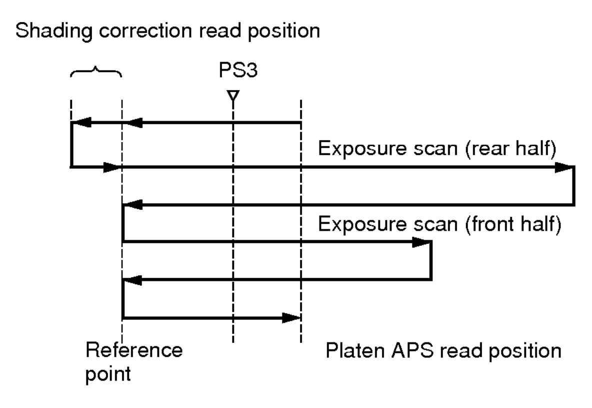
(2) When manual density has been selected


Shading correction read position
PS3
Exposure scan
Reference
point
Platen APS read position

(3) Book copy mode (Image shift (left), AE mode)


Shading correction read position
PS3
AE scan
Exposure scan (rear half)
Exposure scan (front half)
Reference
point
Platen APS read position

(4) Book copy mode (Image shift (left), When manual density has been selected)


Shading correction read position
PS3
Exposure scan (rear half)
Exposure scan (front half)
Reference
point
Platen APS read position

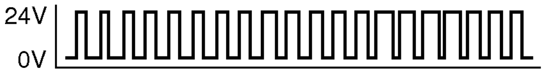
2. Signals

a. Input signal

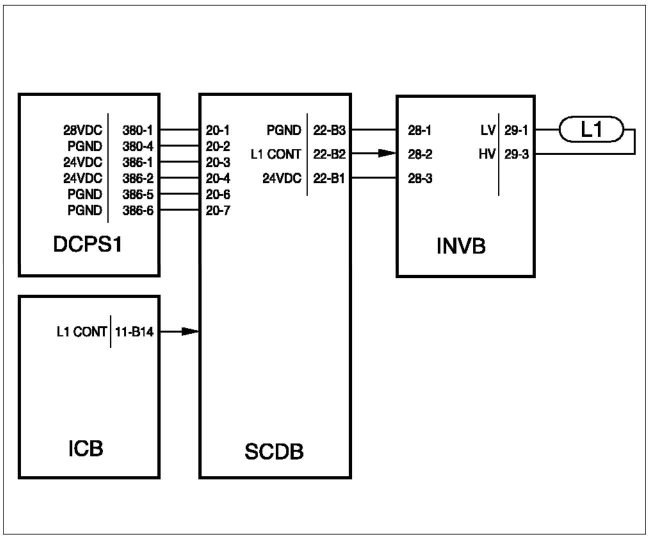
(1) PS3 (PS3 → SCDB → ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position.
[H]: Exposure unit is not in the home position.

b. Output signal

(1) M2 OUTA, OUTXA, OUTB, OUTXB (SCDB → M2)
M2 (scanner drive) ON/OFF drive signal



[5] Exposure control


28VDC
PGND
24VDC
24VDC
PGND
PGND
380-1
380-4
386-1
386-2
386-5
386-6
DCPS1
20-1
20-2
20-3
20-4
20-6
20-7
PGND
L1 CONT
24VDC
22-B3
22-B2
22-B1
28-1
28-2
28-3
LV
HV
29-1
29-3
INVB
L1
L1 CONT
11-B14
ICB
SCDB

Power is supplied to L1 (exposure) from the INVB (inverter board) and is controlled by the ICB (Image control board) via the SCDB (Scanner drive board).

1. Operation

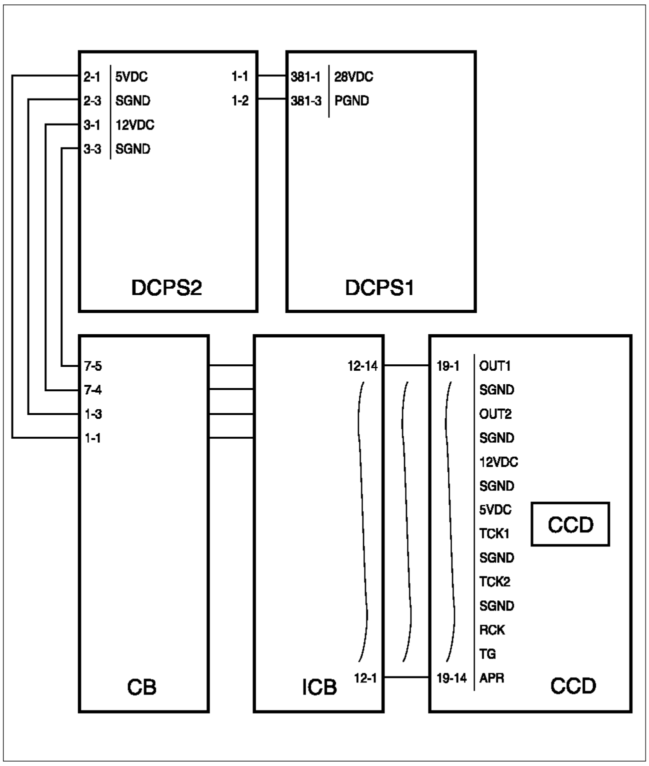
L1 is a xenon lamp which is driven by an inverter circuit. A xenon lamp provides a stable light intensity and also generates relatively little heat, hence it does not require a light intensity control circuit that is used in conventional copying machines, and also protective control that is normally required due to heat generation from the lamp is no longer used.

2. Signals

a. Output signal

(1) L1 CONT (ICB → SCDB → INVB)
L1 ON/OFF control signal
[L]: L1 ON
[H]: L1 OFF

[6] Original Read Control


2-1
5VDC
2-3
SGND
3-1
12VDC
3-3
SGND
1-1
1-2
DCPS2
381-1
28VDC
381-3
PGND
DCPS1
7-5
7-4
1-3
1-1
CB
12-14
12-1
ICB
19-1
OUT1
SGND
OUT2
SGND
12VDC
SGND
5VDC
TCK1
SGND
TCK2
SGND
RCK
TG
19-14
APR
CCD
CCD

The original is read by the CCD sensor installed on the CCD (CCD sensor board).

1. Operation

The light reflected off the exposed original passes through a lens to the CCD sensor. The analog voltages that correspond to the input light intensity are output to the ICB (Image control board), and A/D-converted in the ICB.

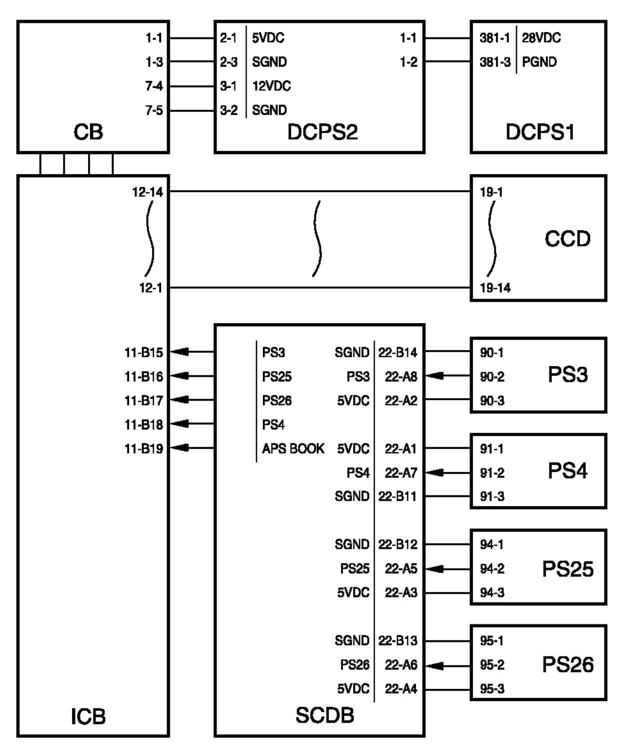
a. Original read operation

The original read timing is as follows.

(1) During a platen copy operation
PS3 (optics home position) goes OFF after the specified time from when the Start button is pressed, and then the exposure unit moves 2 mm to the paper feed side.

(2) During a DF copy operation
After the specified time from the ON of PS308 (original feed detect) by original leading edge.

[7] APS Control


1-1
1-3
7-4
7-5
CB
2-1
5VDC
2-3
SGND
3-1
12VDC
3-2
SGND
1-1
1-2
DCPS2
381-1
28VDC
381-3
PGND
DCPS1
12-14
12-1
19-1
19-14
CCD
11-B15
11-B16
11-B17
11-B18
11-B19
ICB
PS3
PS25
PS26
PS4
APS BOOK
SGND
22-B14
PS3
22-A8
5VDC
22-A2
5VDC
22-A1
PS4
22-A7
SGND
22-B11
SGND
22-B12
PS25
22-A5
5VDC
22-A3
SGND
22-B13
PS26
22-A6
5VDC
22-A4
SCDB
90-1
90-2
90-3
PS3
91-1
91-2
91-3
PS4
94-1
94-2
94-3
PS25
95-1
95-2
95-3
PS26

APS takes place as a result of the signals read by the APS sensors and CCD sensor being sent to the ICB (Image control board) when the platen cover or RADF is opened and closed. Related signals are PS3 (optics home position), PS4 (APS timing) and PS301 (RADF open/close detect).

1. Operation

a. APS detection operation

The APS detection operation differs depending upon whether the platen mode or DF mode is used.

(1) During a DF copy operation
An original size is detected by ON or OFF of PS302 (original size detect 1) and PS303 (original size detect 2) on the paper feed tray of RADF, and resistance value of VR301 (original size detect).

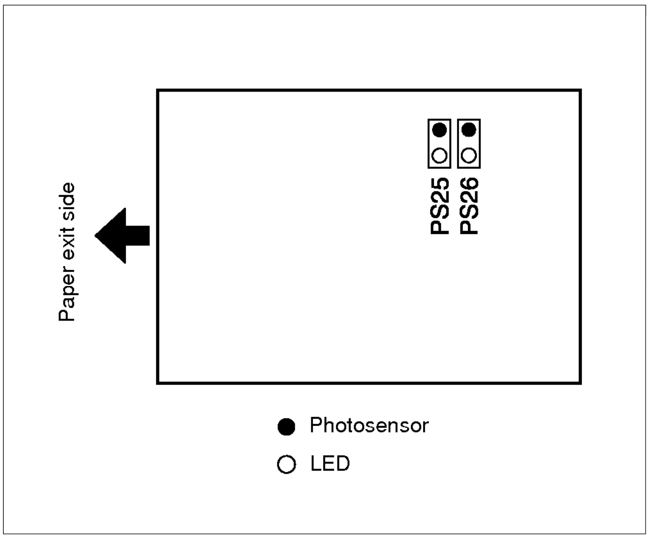
(2) During a platen copy operation
APS detection is used to detect the paper size. This is done by combining the ON/OFF signals from PS25 (APS sensor 1) and PS26 (APS sensor 2) with the detection signal from the CCD sensor mounted on CCD (CCD sensor board).
PS25 and PS26 detect the original size in the sub-scanning direction, and the CCD sensor detects the original size in the main scanning direction.
During APS detection, when L1 (exposure lamp) lights, gradations of light intensity occur in the main scanning direction due to the presence of an original. The CCD sensor detects these gradations of light intensity along

one line, and the ICB judges the size of the original in the main scanning direction from the positional relationship between the two points where the light intensity level switches from black generated by a sky shot to white generated by the edge of the original.

If an RADF is installed, detection of the original size in the main scanning direction takes place once again at the instant PS301 goes ON, and the original size is confirmed.

PS25 and PS26 each consist of an LED and a photosensor. Light emitted from each LED is reflected off the original, and received by the photosensor, thus enabling the size of the original to be detected.

The PS25 and PS26 consist of LEDs and photosensors. APS detection takes place as a result of the light emitted from each LED being reflected off the original and received by the photosensor.



The relation between each sensor and the paper size is shown below.

Sensor / Paper size	PS302 PS25	PS303 PS26
A3	○	○
B4	○	○
A4R	○	×
B5R	×	×
A4	×	×
B5	×	×

○ : Paper is detected (ON).
× : Paper is not detected (OFF).

b. APS detection timing

The APS detection timing differs depending upon whether the platen mode or the DF mode is used.

(1) During a DF copy operation
When either the DF mode is selected or an original is placed in the RADF paper feed tray, the original size is detected by PS302 (original size detect 1), PS303 (original size detect 2) and VR301 (original size detect).

(2) During a platen copy operation
When PS4 (APS timing) is ON
- * If an RADF is installed, the original size is re-detected when PS301 (RADF open/close PS) goes ON.
- * If the platen or RADF is open, the original size is detected when the Start button is pressed.

2. Signals

a. Input signals

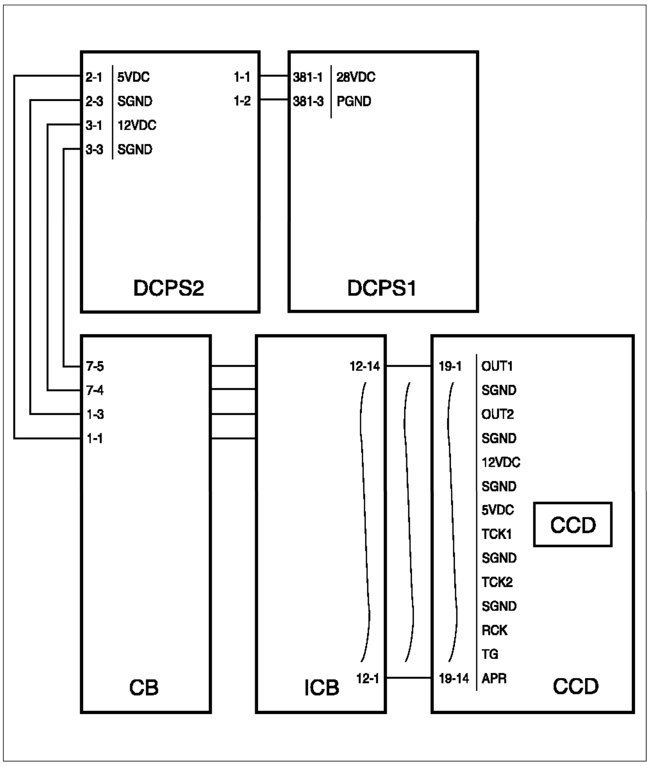
(1) PS3 (PS3 → SCDB → ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position.
[H]: Exposure unit is not in the home position.

(2) PS4 (PS4 → SCDB → ICB)
RADF or platen cover opening/closing detection signal
Activates or deactivates the APS function at a platen copy operation.
[H]: ON (APS function activated)
[L]: OFF (APS function deactivated)

(3) PS25 (PS25 → SCDB → ICB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

(4) PS26 (PS26 → SCDB → ICB)
Paper size detection signal
[L]: Paper is detected.
[H]: Paper is not detected.

[8] AE Control



When an AE scanning takes place, the CCD sensor installed on the CCD (CCD sensor board) reads the original density, and the ICB (image control board) performs processing corresponding to the read results and selects the optimum γ correction curve for the original reproduction. This operation is called AE control. The selection of this γ correction curve is done by the CPU on the ICB.

1. Operation

a. AE detection operation

(1) During a platen copy operation
When the Start button is pressed, an AE scanning takes place, and the density of the original is read over the following range.

<AE sampling range>
1) When the platen cover or RADF is open
Range of erasure outside the original, or the inside of the area detected by the APS
2) When the platen cover or RADF is closed
- Range of 20 mm inward of the original size detected by the APS
- If the original size cannot be determined by the APS, a range of 20 mm inward of the minimum original size set for the particular shipping destination of the machine.

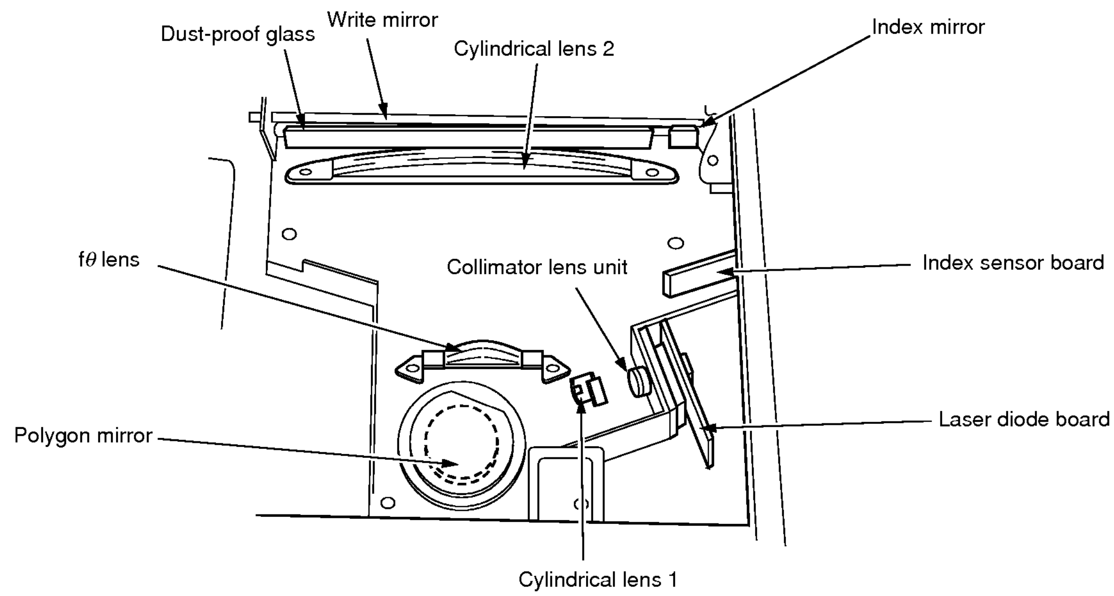
(2) During a DF copy operation (1-1)
The image at the leading edge of the original is read by the original feed operation that takes place when the Start button is pressed, and the read data is used to perform density measurement.

<AE sampling range>
1) Main scanning direction
- A range of 20 mm inward of the original size detected by the APS
- If the original size cannot be determined by the APS, a range of 20 mm inward of the minimum original size set for the particular shipping destination of the machine.

2) Sub scanning direction
Range between 1.5 mm and 2.9 mm from the leading edge of the original

WRITE UNIT

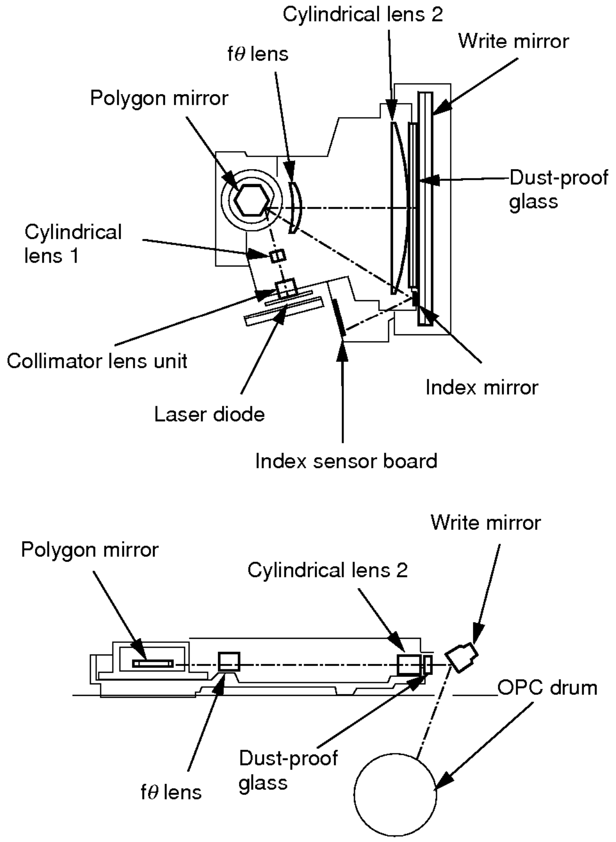
[1] Construction


Dust-proof glass
Write mirror
Cylindrical lens 2
Index mirror
fθ lens
Collimator lens unit
Index sensor board
Laser diode board
Polygon mirror
Cylindrical lens 1

[2] Mechanism

	Mechanisms	Methods
*1	Scan	Polygon mirror Rotational speed: · 33070.9 rpm (400 dpi) · 42283.4 rpm (600 dpi)
	Light source	Laser diode (1) · Output : Max 8 mW · Wavelength : 780 nm
	Positioning	Index sensor

***1: Path of laser beam**
The light output from the semiconductor laser is sent to the OPC drum via the collimator lens, cylindrical lens 1, polygon mirror, fθ lens, cylindrical lens 2, and write mirror.


Cylindrical lens 2
fθ lens
Write mirror
Polygon mirror
Dust-proof glass
Cylindrical lens 1
Collimator lens unit
Index mirror
Laser diode
Index sensor board
Write mirror
Polygon mirror
Cylindrical lens 2
OPC drum
Dust-proof glass
fθ lens

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Write Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

⚠Warning:

(1) DO NOT energize the write unit when it is not installed in the machine.

(2) DO NOT remove the cover from the write unit with the circuit being energized.
If the laser beam gets into your eyes, you may lose your sight.

(3) DO NOT remove the write unit for at least two minutes after turning OFF the main switch.

Caution:

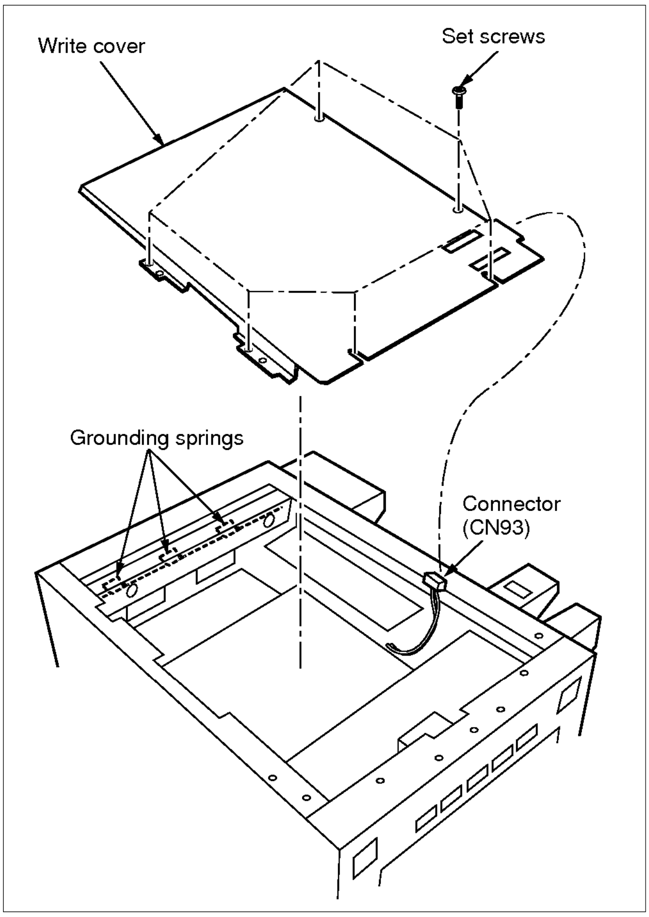
1. When removing the write unit, do not make contact with the write mirror and dust-proof glass. (prevention of the scratch and stain for the mirror.)
2. When installing the write cover, check that the write cover is got caught in the ground spring.

a. Procedure

(1) Remove the original glass. (Refer to “Read section”)

(2) Remove the six set screws and disconnect the connector (CN93), then remove the write cover.

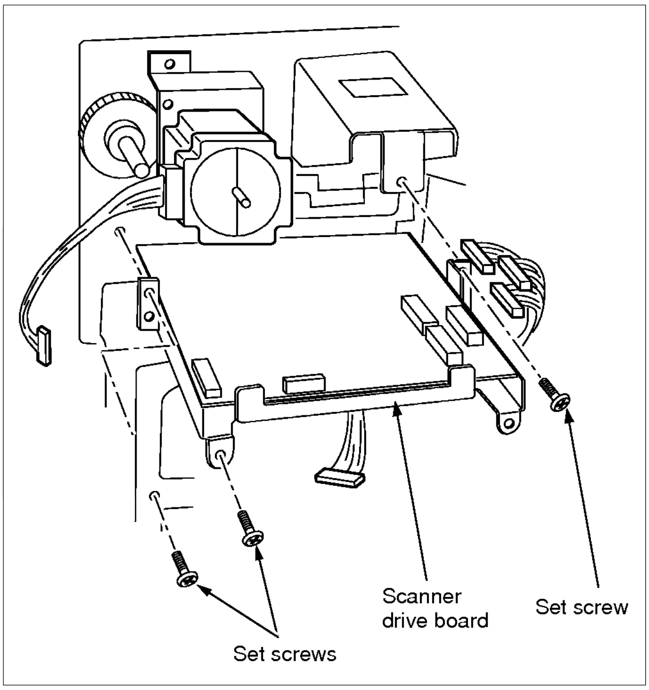
(3) Remove the rear cover. (Refer to “External section”)


Write cover
Set screws
Grounding springs
Connector
(CN93)

(4) Remove the three set screws holding the scanner drive board.

Caution: Be careful not to drop screws etc. between the boards at the rear of the main body.

(5) Remove the right side cover. (Refer to “External section”)


Scanner
drive board
Set screw
Set screws

(6) Remove the cover plate. (Refer to “Read section”)

(7) Disconnect the connector (CN12) from the image control board. (Refer to “Read section”)

(8) Pull out the scanner drive board into the rear side of the machine and disconnect the connector (CN11) on the image control board from the scanner drive board.

(9) Remove the two set screws and pull out the image control board.

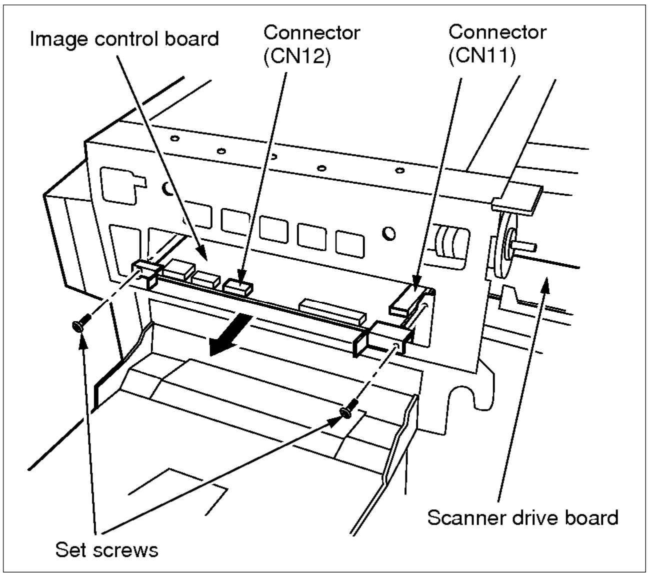
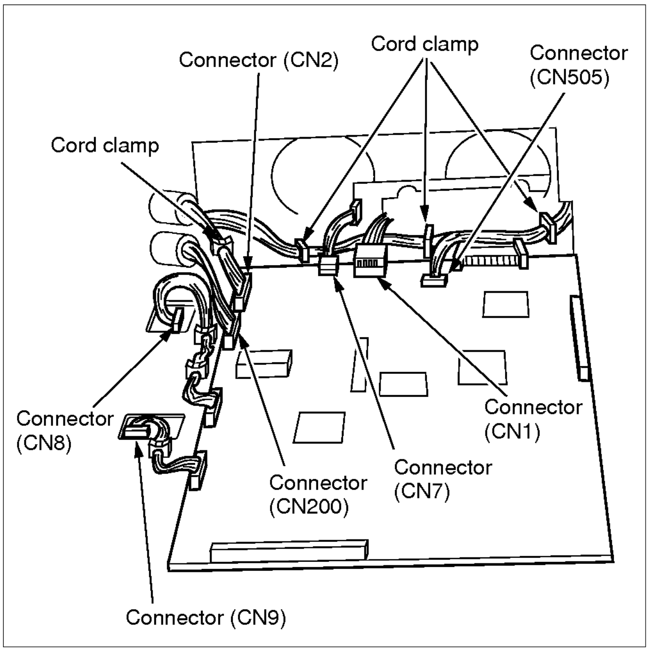
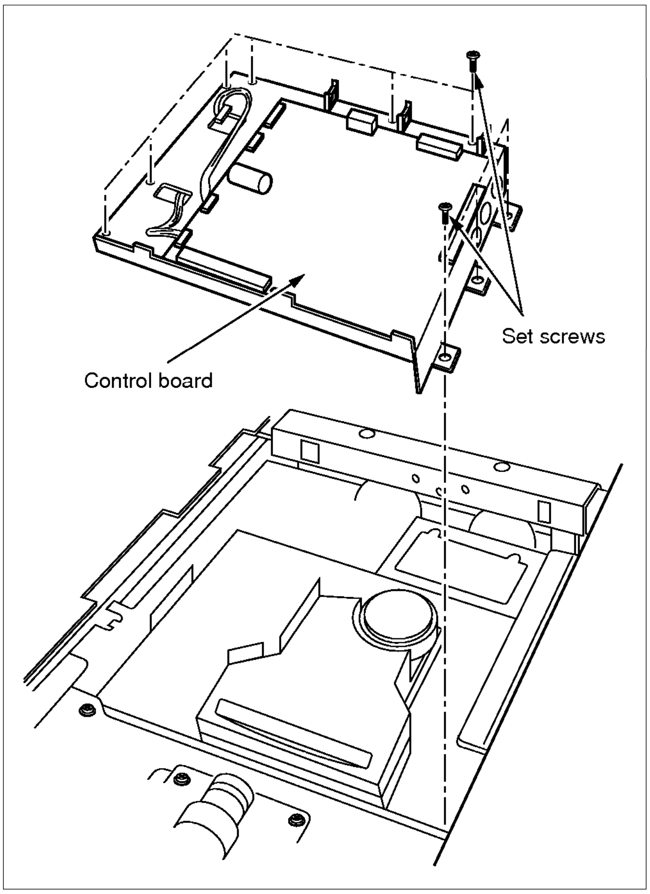


Image control board
Connector
(CN12)
Connector
(CN11)
Scanner drive board
Set screws

(10) Disconnect the seven connectors (CN1, CN2, CN7, CN8, CN9, CN200, CN505) and free the wiring from the four cord clamps.

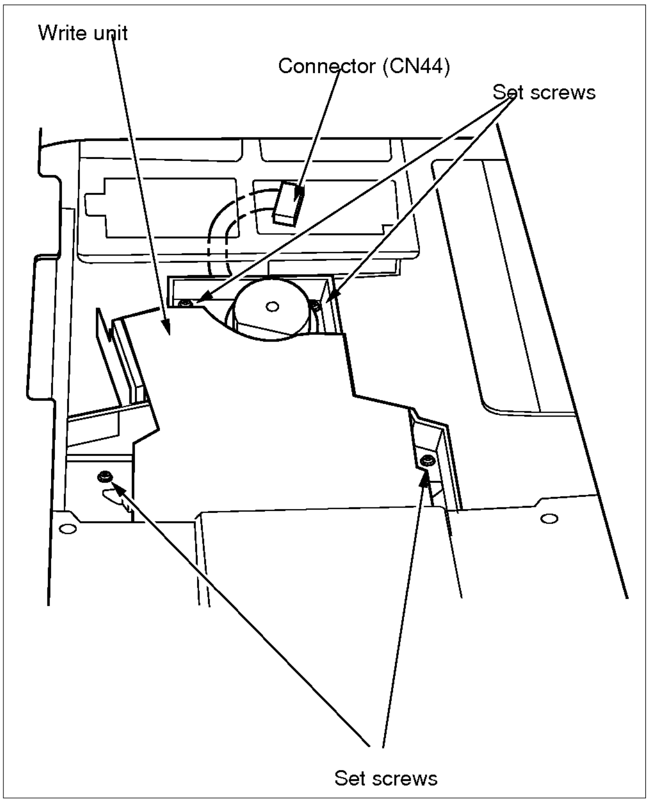

Connector (CN2)
Cord clamp
Connector (CN505)
Cord clamp
Connector (CN8)
Connector (CN200)
Connector (CN7)
Connector (CN1)
Connector (CN9)

(11) Remove the nine set screws, then remove the control board.


Set screws
Control board

(12) Disconnect the connector (CN44).

(13) Remove the four set screws, then remove the write unit.


Write unit
Connector (CN44)
Set screws
Set screws

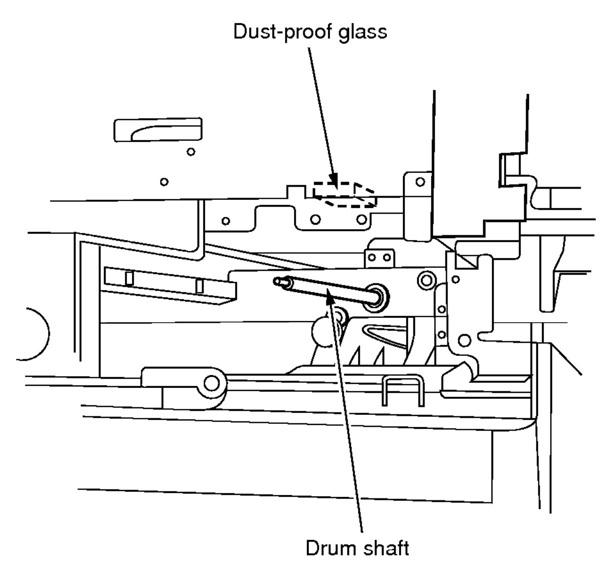
(14) Re-install the write unit in the opposite sequence to removal.

2. Cleaning the Dust-proof Glass

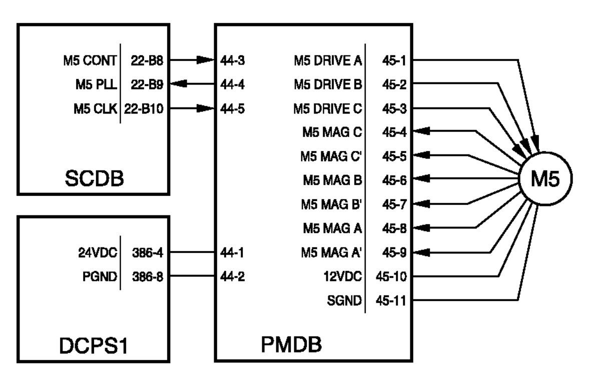
a. Procedure

(1) Remove the drum unit. (Refer to “Drum unit”)

(2) Reach inside the main body and using a soft cloth wipe the dirt from the dust-proof glass.


Dust-proof glass
Drum shaft

[4] M5 (polygon) Control


M5 CONT
22-B8
M5 PLL
22-B9
M5 CLK
22-B10
SCDB
24VDC
386-4
PGND
386-8
DCPS1
44-3
44-4
44-5
44-1
44-2
M5 DRIVE A
45-1
M5 DRIVE B
45-2
M5 DRIVE C
45-3
M5 MAG C
45-4
M5 MAG C'
45-5
M5 MAG B
45-6
M5 MAG B'
45-7
M5 MAG A
45-8
M5 MAG A'
45-9
12VDC
45-10
SGND
45-11
PMDB
M5

M5 (polygon) is driven by the PMDB (Polygon motor drive board), and is controlled by the SCDB (Scanner drive board).

1. Operation

a. M5 is a 3-phase brushless DC motor which is driven using a 3-phase bipolar method. The current flowing through the windings is switched according to the position of the rotor which is detected by a sensor (magnetic sensor) inside the motor.
This motor rotates the polygon mirror, causing the laser beam from LDB (laser diode board) to be scanned in the axial direction of the drum. The speed of the motor is maintained constant by PLL control.

b. M5 is powered by 24 VDC. The rotational speed is as follows.

State of the machine	Rotational speed
During copy (400 dpi)	33070.9 rpm
During idling	One of the following three speeds can be selected using the “25” mode. • 33070.9 rpm • 20000 rpm * • Stop *

* If the item marked * is selected, the rotational speed of M5 switches over after the lapse of the specified time from the completion of the warm-up or the end of the copy process.
The specified time can be selected using the “25” mode among below.
· 15 sec, 30 sec, 60 sec, 120 sec

2. Signals

a. Input signals

(1) M5 PLL (PMDB → SCDB)
M5 rotation speed monitoring signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

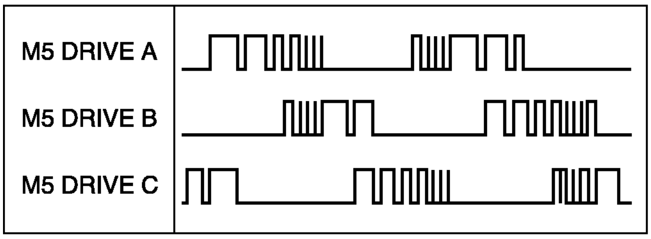
(2) M5 MAG A/A' (M5 → PMDB)
M5 MAG B/B' (M5 → PMDB)
M5 MAG C/C' (M5 → PMDB)
These are output signals from the position sensors (magnetic sensors) installed inside M5. The PMDB detects the position of the rotor of the motor by means of these signals, and switches over the M5 DRIVE A to C output.

b. Output signals

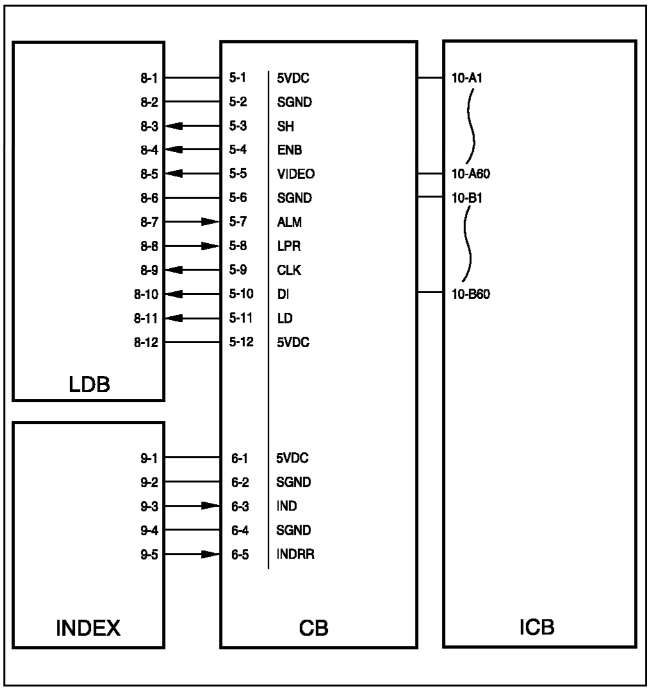
(1) M5 CONT (SCDB → PMDB)
This signal controls the ON/OFF state of M5.
[L]: M5 ON
[H]: M5 OFF

(2) M5 CLK (SCDB → PMDB)
This is a reference clock signal for PLL-controlling M5 in the PMDB.

(3) M5 DRIVE A to C (PMDB → M5)
This is the drive output signal for M5. While M5 is rotating, voltages are output sequentially from M5 DRIVE A to C, and applied to M5.
The voltage from each output that is applied to M5 consists of the pulses shown below. The pulse width of this output changes according to the rotation condition of M5, as shown in the figure, and as a result the RMS value of the voltage applied to M5 changes, causing the speed to be regulated.



[5] Image Write Control



The analog image data from the CCD sensor is A/D-converted and processed by the ICB (image control board). The processed image data is memorized by the CB (control board), then returned to the ICB once again and converted into a laser record signal. The laser record signal is transmitted via the CB to the LDB (Laser diode board) by the control signal from the ICB, and output as an optical signal from the laser installed on the LDB. The write start position of the laser record signal is detected by INDEX (index sensor board).

1. Operation

a. Image processing

The following processing is carried out by the ICB.

(1) AOC (automatic offset correction)
When SW2 (sub power) is turned ON, a read operation takes place while L1 (exposure lamp) is OFF, and the analog offset voltage of the output from the CCD sensor is automatically adjusted so that the resulting level is the lower limit of the A/D converter.

(2) AGC (automatic gain correction)
When SW2 is turned ON, the white reference plate is read, and the amplification of the analog output from the CCD sensor is automatically adjusted so that the resulting level is the upper limit of the A/D converter.

(3) Shading correction
<Implementation timing>
White correction, Black correction
* When SW2 is ON
* Before each exposure scanning

(4) Brightness/density conversion
(5) AE processing
(6) Text/dot pattern judgement
(7) Filtering
(8) Magnification change processing
(9) Copy γ correction
(10) Write density control

b. Write

The ICB (image control board) sends image data one pixel at a time to LDB in accordance with control signals from the CB (control board).

LDB cause the laser to emit at a time period corresponding to the image data. This laser light is applied to the drum.

(1) MPC (Maximum power control)
The ICB instructs the LDB to cause the laser to output the maximum power output value, thus setting the maximum output value. The LDB stores this setting, and maintains the laser light intensity stored by means of the APC (automatic power control) operation.
<MPC timing>
- When SW2 (sub power) is turned ON.

(2) APC (automatic power control)
The ICB outputs an APC start instruction to the LDB at the following timing, after MPC is set.
<APC timing>
- When PLL lock of M5 (polygon) is detected.
  (400 dpi)

After PLL lock is detected, the LDB automatically monitors the laser drive current one line at a time, and controls it so that the light intensity remains the MPC value.

(3) Write Timing
In this machine, the IND signal from INDEX determines the laser write start timing for each scan in the axial direction of the drum.

2. Signals

a. Input signals

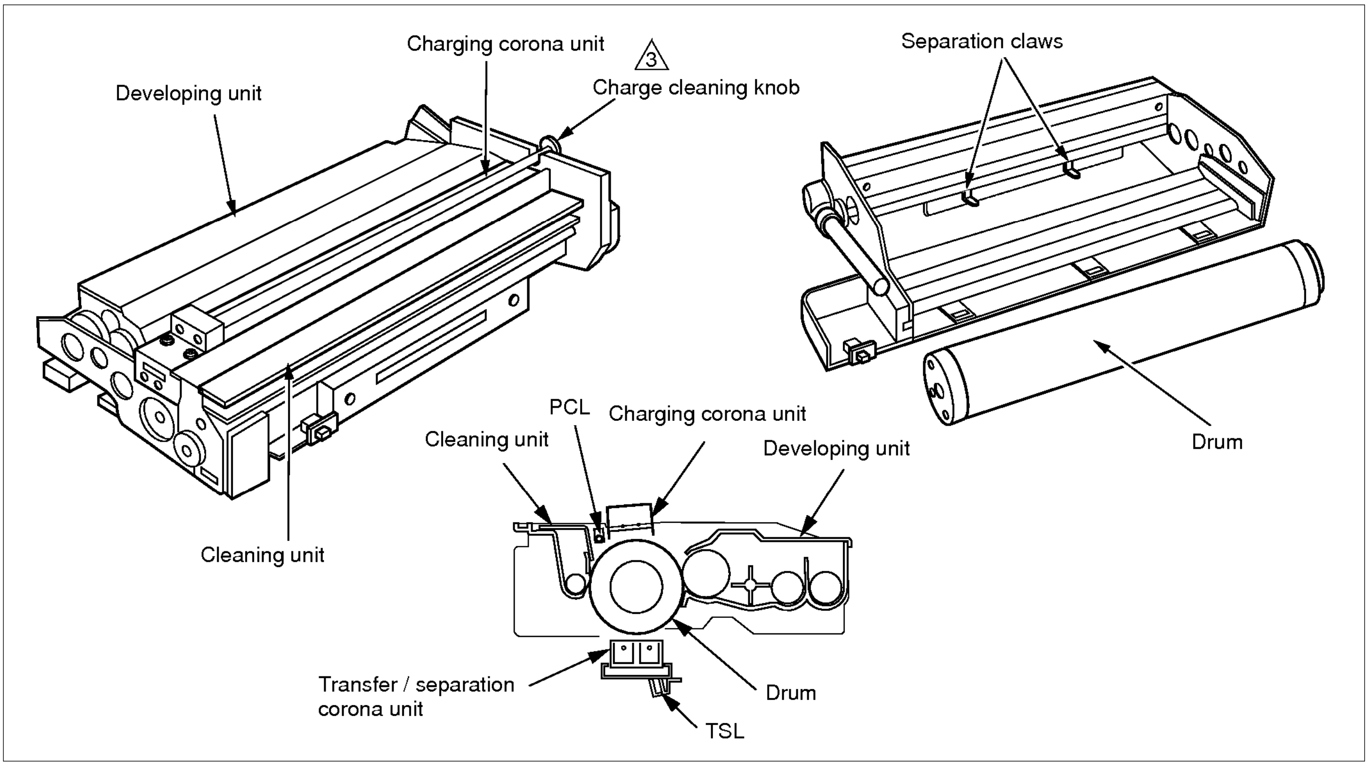
(1) IND (INDEX → CB → ICB)
Write system index signal
(2) INDPR (INDEX → CB → ICB)
5 VDC power monitoring signal for INDEX
(3) ALM (LDB → CB → ICB)
Signal which indicates an abnormality in the laser drive current (APC operation).
[H]: Normal
[L]: Abnormal
(4) LPR (LDB → CB → ICB)
5 VDC power monitoring signal for LDB

b. Output signals

(1) VIDEO (ICB → CB → LDB)
Laser image data signal
(2) CLK (ICB → CB → LDB)
Data transfer clock signal for MPC setting value
(3) DI (ICB → CB → LDB)
Data signal of MPC setting value
(4) LD (ICB → CB → LDB)
Storage directive signal for MPC setting value
(5) SH (ICB → CB → LDB)
APC sampling signal for one line scan
(6) ENB (ICB → CB → LDB)
Laser APC function ON/OFF control signal
While this signal is OFF then the laser beam output is prohibited.

DRUM UNIT

[1] Construction


Charging corona unit
△3
Charge cleaning knob
Developing unit
Separation claws
Cleaning unit
PCL
Charging corona unit
Cleaning unit
Developing unit
Drum
Transfer / separation corona unit
Drum
TSL

[2] Mechanism

Mechanisms	Methods
Carriage supply	Fixed rail
PCL	LED
Auxiliary separation	Separation claws

The drum unit of this machine is an integral assembly consisting of the drum, and also the charging corona unit, developing unit, cleaning unit, toner recycle unit and the PCL which are installed around the drum.

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Drum Unit

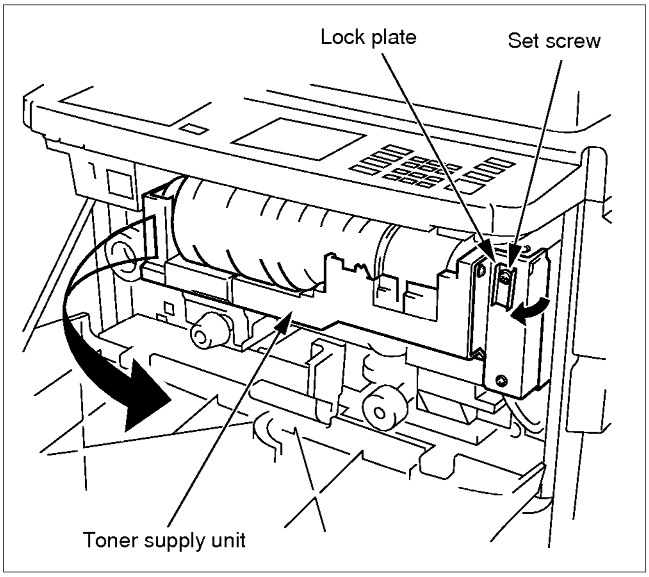
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

△3 **Caution:**

1. Do not shake the drum unit up and down, side to side, or repeatedly move back and forth when removing or installing and handle it slowly keeping it horizontal to its axis.
2. When removing or installing the drum unit, pull out the drum coupling shaft that is on your side and work with the lock mechanism fixed in place.
3. When installing the drum unit, clean the drawer connector on the back side of the drum unit with the blower brush.
4. After installing the drum unit back into the main unit, rotate the charge cleaning knob back and forth about 2 times.
5. When removing the drum unit, be sure to place the drum cover over it and store the drum carriage in a dark place.
6. Be careful not to rotate the drum when installing or removing the drum unit. If you rotate the drum in the direction opposite to the direction in which it rotates during a copy operation, you risk damaging the cleaning blade.

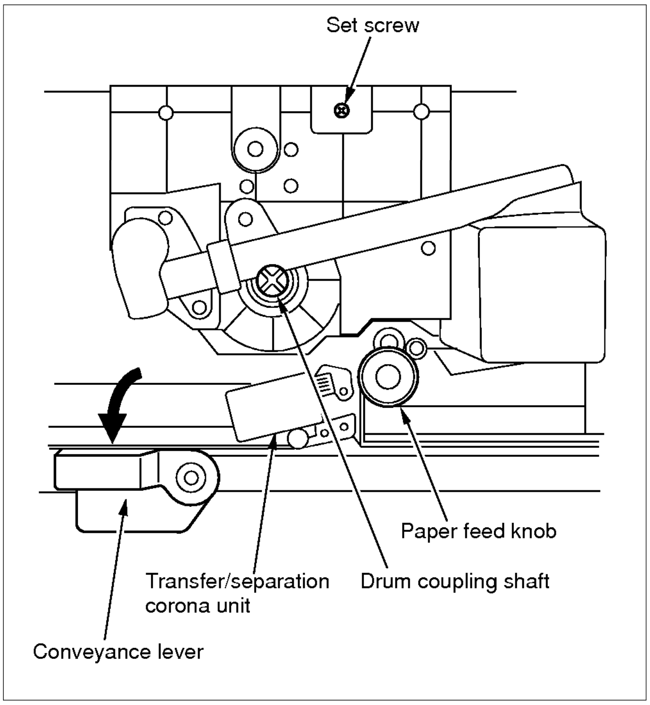
a. Removal procedure

(1) Open the front door, loosen the one set screw, release the lock plate of the toner supply unit, then open the toner supply unit to the paper feed side.



(2) Release the conveyance lever.
(3) Remove the Transfer/separation corona unit from the main body. (Refer to “Corona unit”)
(4) Remove the paper feed knob.
(5) Remove the one set screw holding the drum unit.

△1



(6) Slowly pull the drum unit out careflly to the front.

△1 **b. Re-installation procedure**

(1) Make sure that the drum coupling shaft and the drum flange are correctly meshed.
(2) Slowly insert the drum unit into the main body until the drum coupling shaft hit the drum shaft and it is pushed out slightly toward you. (When the drum coupling shaft and the drum flange are not correctly meshed, the drum coupling shaft hit the drum shaft and it is pushed out toward you.)

Caution: At this time, do not squeeze the drum unit into the main body by force. Also, do not rotate the drum coupling shaft with the drum unit is squeezed into the main body.

(3) With the drum coupling shaft is pushed out slightly toward you, rotate the drum coupling shaft in the forwarding direction, and mesh the drum coupling shaft and the drum shaft correctly.
(4) Securely re-install the drum unit to the main body and fix it with the set screw.
(5) Re-install the drum unit in the opposite sequence to removal.

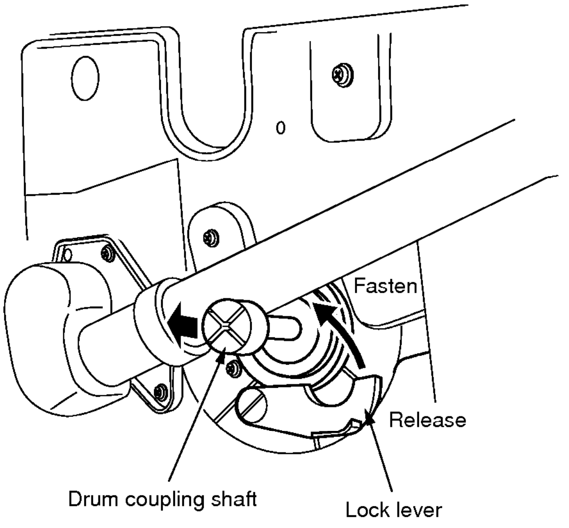
2. Removing and Re-installing the Drum

Caution:

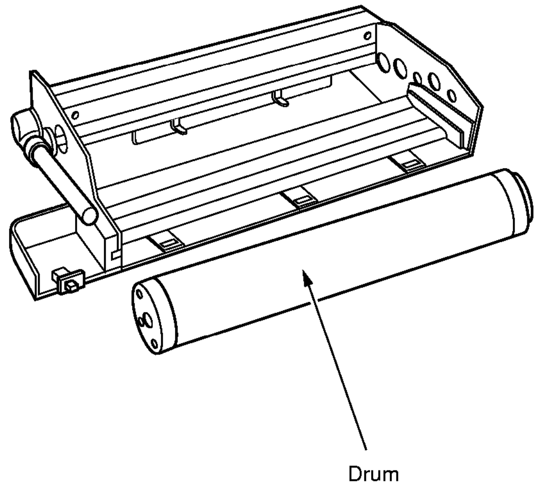
1. Be careful not to touch the drum or the cleaning blade with bare hands, or damage these parts.
2. When removing and re-installing the drum, be careful not to hit the drum on the metal plate section of the cleaning blade.
3. When leaving the drum to stand, be sure to place the drum cover over it and store it in a dark place.
4. When installing the drum and cleaning blade, regardless of the new or old parts, apply setting powder to all of the drum surface and the both ends of the cleaning blade.
5. After applying setting powder to the drum, carry out the following work before installing the drum unit into the main body.
   - To obtain the correct toner density, clean setting powder leakage on the surface of the sensor on the toner control sensor board with an alcohol damped cloth.
6. When installing the drum, be careful of the orientation of the drum. The gear side of the drum is rear the side.
7. When installing a new drum, be sure to enter code 91 of the 47 mode and reset the process counter (drum counter). Also, be sure to preform the charging grid voltage and PWM gamma correction adjustment. (For details, refer to “Adjustment section”.)

a. Removal procedure

(1) Pull out the drum coupling shaft, then fasten it with the lock lever.
(2) Remove the drum unit from the main body.
(3) Remove the charging corona unit and developing unit from the drum unit. (For the sequence of removing these parts, refer to “Corona unit” and “Developing unit”.)
(4) Holding the both ends of the drum and lower the cleaning unit, then shake the drum unit few times.
(5) Check that the toner is not left between cleaning blade and toner collection sheet.


Fasten
Release
Drum coupling shaft
Lock lever

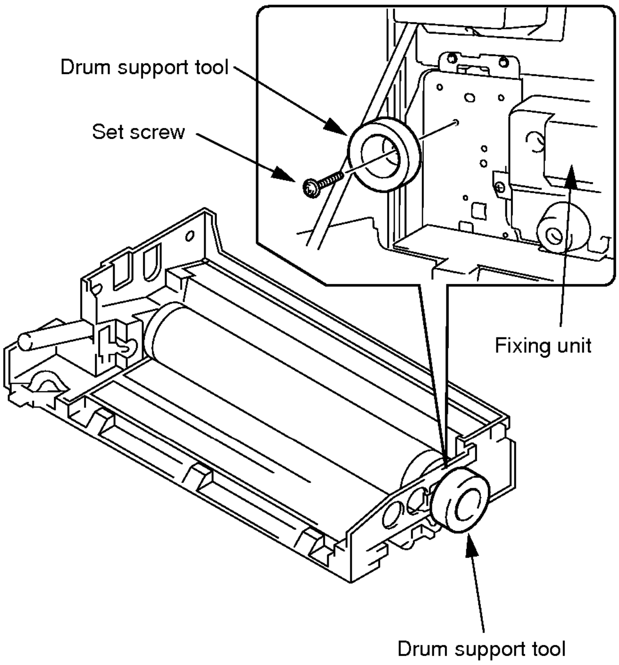
(6) Gently lift out the drum while holding it at both ends to ensure that you do not damage the photosensitive surface.



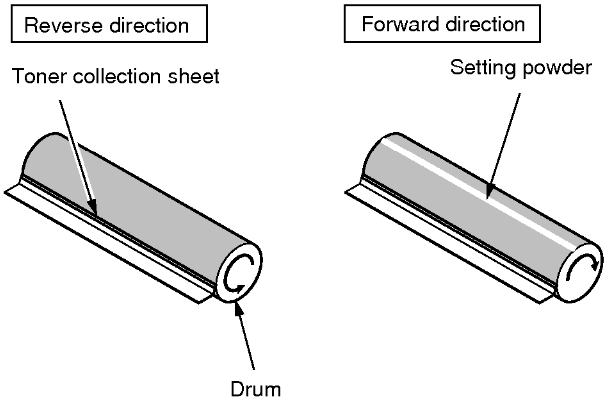
b. Re-installation procedure

Caution: Push down both ends of the toner collection sheet towards you and confirm that the entire drum is in contact without any space.

(1) Remove the cleaning blade. (Refer to “Cleaning / toner recycle section”.)
(2) Apply setting powder into the entire surface of the drum.
(3) Install the drum to the drum casing and release the lock lever, then lock the drum coupling to the drum flange.
(4) Remove the drum support tool from the main body and insert it into the drum (gear side).


Drum support tool
Set screw
Fixing unit
Drum support tool

(5) Rotate the drum counterclockwise.
(6) Rotate the drum clockwise a bit.
(7) Check that setting powder collected by the toner collection sheet remains on the surface of the drum to the both ends of the drum without a clearance.


Reverse direction
Forward direction
Toner collection sheet
Setting powder
Drum

(8) Remove the drum support tool from the drum.
(9) Pull out the drum coupling shaft, then fasten it with the lock lever.
(10) Remove the drum from the drum casing.
(11) Gently wipe setting powder on the surface of the drum with a cleaning pad.
(12) Apply setting powder to the entire surface of the drum.
(13) Apply toner to both ends of the cleaning blade edge and setting powder to the middle of the drum.
(14) Install the drum to the drum casing, release the lock lever, lock the drum coupling to the drum flange and install the drum support tool to the drum.
(15) Re-install the cleaning blade.
(16) Rotate the drum in the forward direction and check that there is no setting powder falling and curling of the cleaning blade.
(17) The reminder of the installation procedure is in the opposite sequence to removal.

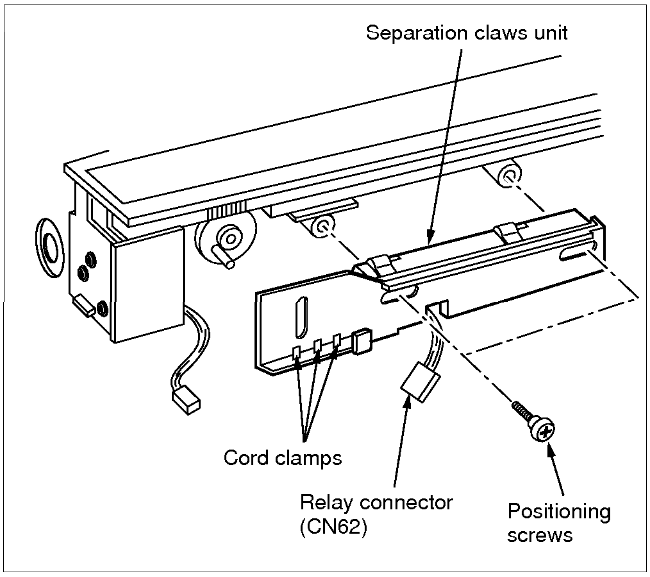
3. Removing and Re-installing the Separation Claws

Caution:

1. Take care not to damage the drum when removing the separation claws.
2. Be careful of the orientation and position of the separation claws when re-installing the claws.
3. Do not touch the cleaning blade or the drum with the bare hands.

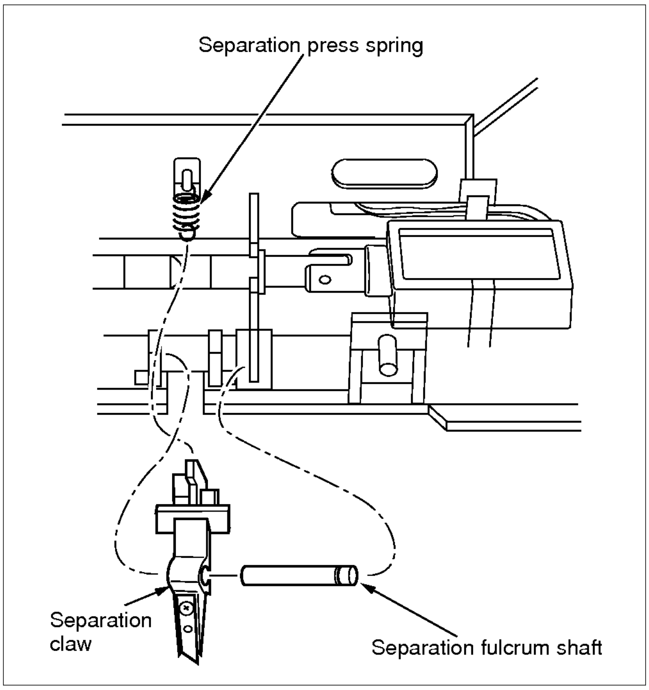
a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the drum from the drum unit.
(3) Disconnect the relay connector (CN62) and free the wiring from the cord clamps.
(4) Remove the two positioning screws, then remove the separation claws unit.



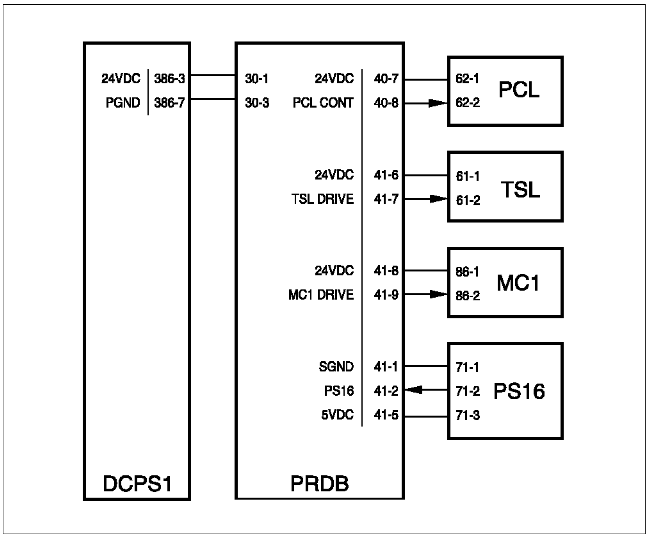
(5) Remove the separation press spring from each of the separation claws.

(6) While pressing down the separation fulcrum shaft, remove the separation claw (two).


Separation press spring
Separation claw
Separation fulcrum shaft

(7) Re-install the separation claws in the opposite sequence to removal.

[4] PCL/TSL Control


24VDC
386-3
PGND
386-7
30-1
30-3
24VDC
40-7
PCL CONT
40-8
62-1
62-2
PCL
24VDC
41-6
TSL DRIVE
41-7
61-1
61-2
TSL
24VDC
41-8
MC1 DRIVE
41-9
86-1
86-2
MC1
SGND
41-1
PS16
41-2
5VDC
41-5
71-1
71-2
71-3
PS16
DCPS1
PRDB

The PCL (precharging exposure lamp) and TSL (transfer sync exposure lamp) consist of LEDs which are controlled by the PRDB (printer drive board).

1. Operation

PCL goes ON after the specified time from when the Start print button is pressed, and goes OFF again after the specified time from the turning OFF of PS16 (registration) upon the final copy exit.

TSL goes ON after the specified time from when MC1 (registration) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF.

2. Signals

a. Input signal

(1) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

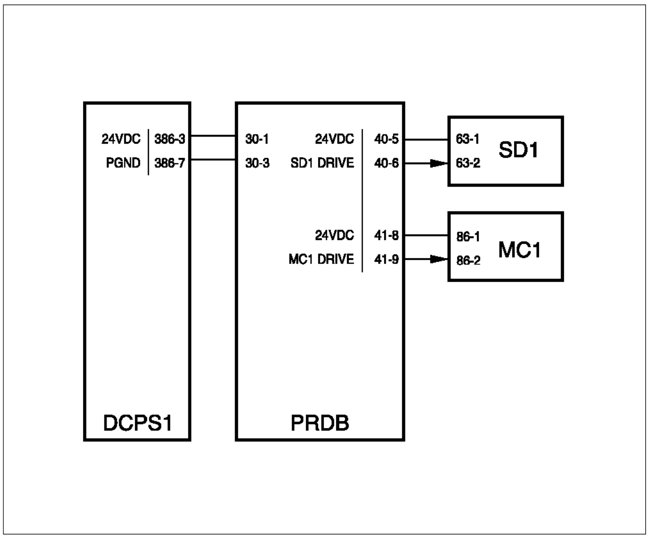
b. Output signals

(1) PCL CONT (PRDB → PCL)
PCL ON/OFF control signal
[L]: PCL ON
[H]: PCL OFF

(2) TSL DRIVE (PRDB → TSL)
TSL drive control signal
[L]: TSL ON
[H]: TSL OFF

(3) MC1 DRIVE (PRDB → MC1)
MC1 drive control signal
[L]: MC1 ON
[H]: MC1 OFF

[5] Separation Claw Control


24VDC
386-3
PGND
386-7
30-1
30-3
24VDC
40-5
SD1 DRIVE
40-6
63-1
63-2
SD1
24VDC
41-8
MC1 DRIVE
41-9
86-1
86-2
MC1
DCPS1
PRDB

The separation claws are driven by SD1 (separation claw), and is controlled by the PRDB (Printer drive board).

1. Operation

SD1 goes ON after the specified time from when MC1 (registration) goes ON, causing the separation claws to touch the drum in order to help separate the paper from the drum.

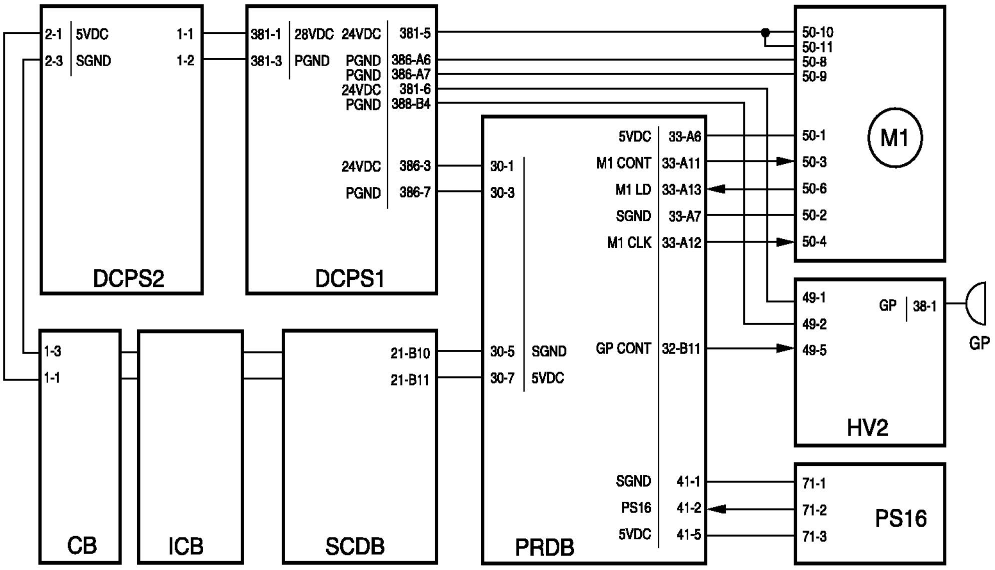
2. Signals

a. Output signal

(1) SD1 DRIVE (PRDB → SD1)
SD1 drive control signal
[L]: SD1 ON
[H]: SD1 OFF

(2) MC1 DRIVE (PRDB → MC1)
MC1 drive control signal
[L]: MC1 ON
[H]: MC1 OFF

[6] Transfer Guide Plate Control


2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
28VDC
24VDC
381-5
381-3
PGND
PGND
386-A6
PGND
386-A7
24VDC
381-6
PGND
388-B4
24VDC
386-3
PGND
386-7
DCPS1
50-10
50-11
50-8
50-9
50-1
50-3
50-6
50-2
50-4
M1
5VDC
33-A6
M1 CONT
33-A11
M1 LD
33-A13
SGND
33-A7
M1 CLK
33-A12
30-1
30-3
30-5
SGND
30-7
5VDC
GP CONT
32-B11
SGND
41-1
PS16
41-2
5VDC
41-5
PRDB
49-1
49-2
49-5
GP
38-1
GP
HV2
71-1
71-2
71-3
PS16
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB

A constant voltage is applied to the transfer guide plate in order to prevent toner from adhering to it.

1. Operation

a. ON/OFF timing

Transfer guide plate control goes ON after the specified time from when the Start button is pressed, and goes OFF again after the specified time from PS16 (registration) goes OFF.

b. Applied voltage

–500 VDC

2. Signal

a. Input signals

(1) M1 LD (M1 → PRDB)
M1 rotational status detection signal
This signal becomes [L] when M1 reaches the set speed.

(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) GP CONT (PRDB → HV2)
Signal for controlling ON/OFF of the voltage applied to the paper entrance guide plate.
[L]: Voltage is applied.
[H]: Voltage is not applied.

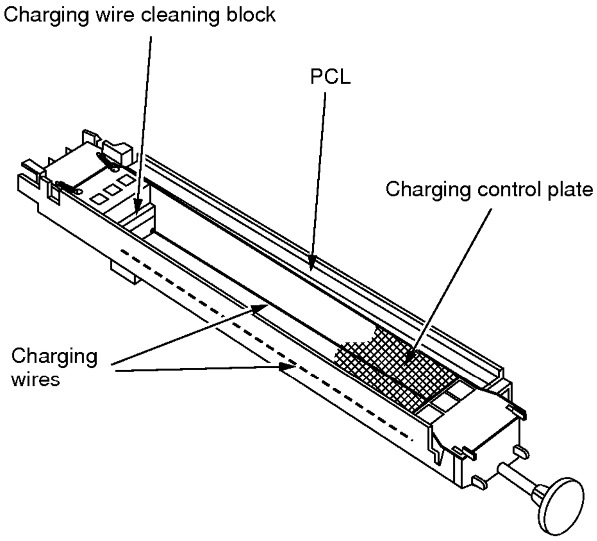
(2) M1 CONT (PRDB → M1)
M1 drive control signal
[L]: M1 ON
[H]: M1 OFF

(3) M1 CLK (PRDB → M1)
Reference clock signal for controlling the speed of M1

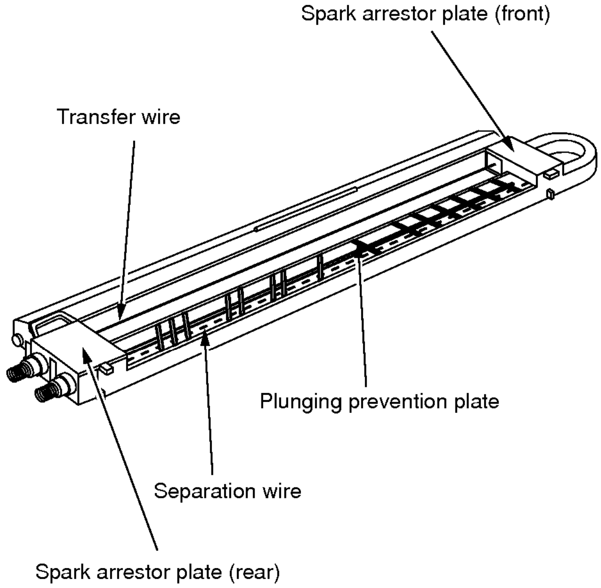
CORONA UNIT SECTION

[1] Construction

<Charging corona unit>


Charging wire cleaning block
PCL
Charging control plate
Charging wires

<Transfer and separation corona unit>


Spark arrestor plate (front)
Transfer wire
Plunging prevention plate
Separation wire
Spark arrestor plate (rear)

[2] Mechanism

Mechanisms	Method
Charging	Scorotron (DC negative corona discharge) Discharge wire: Tungsten 0.06 mm dia. (gold-plated skin path) Grid control: Stainless steel plate With manual wire cleaner
Transfer	DC positive corona discharge Discharge wires: Tungsten 0.06 mm dia. (protection by a tough film of oxide)
Separation	AC/DC corona discharge Discharge wires: Tungsten 0.06 mm dia. (protection by a tough film of oxide)

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Charging Corona Unit and PCL

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

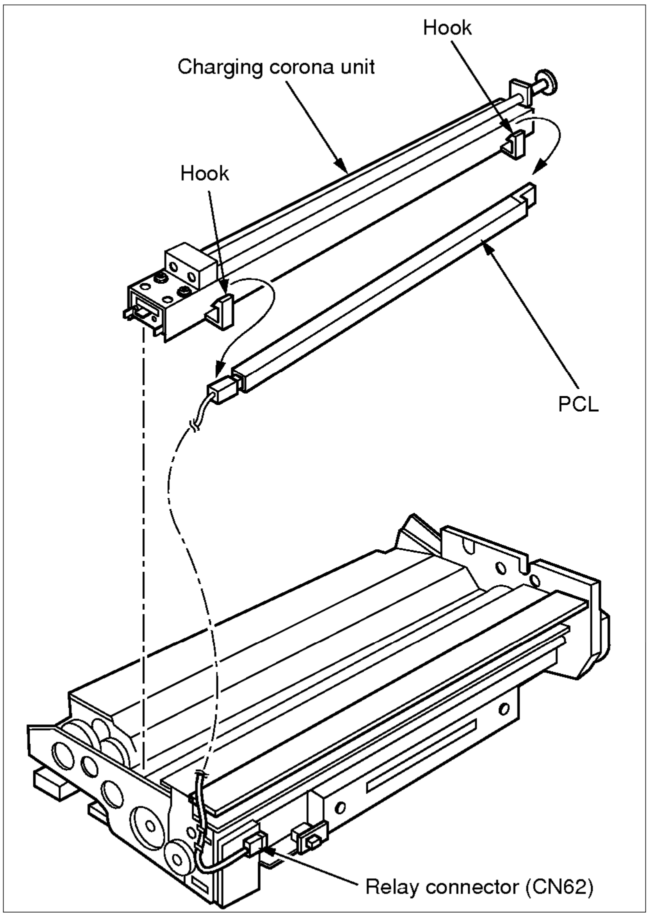
a. Procedure

(1) Remove the drum unit from the main body.

(2) Disconnect the relay connector (CN62) from the drum unit.

(3) Lift up the charging corona unit at the rear side first then while moving it to the rear raise the front side.

(4) Remove the PCL from the hooks of the charging corona unit.


Hook
Charging corona unit
Hook
PCL
Relay connector (CN62)

(5) Re-install the charging corona unit and PCL in the opposite sequence to removal.

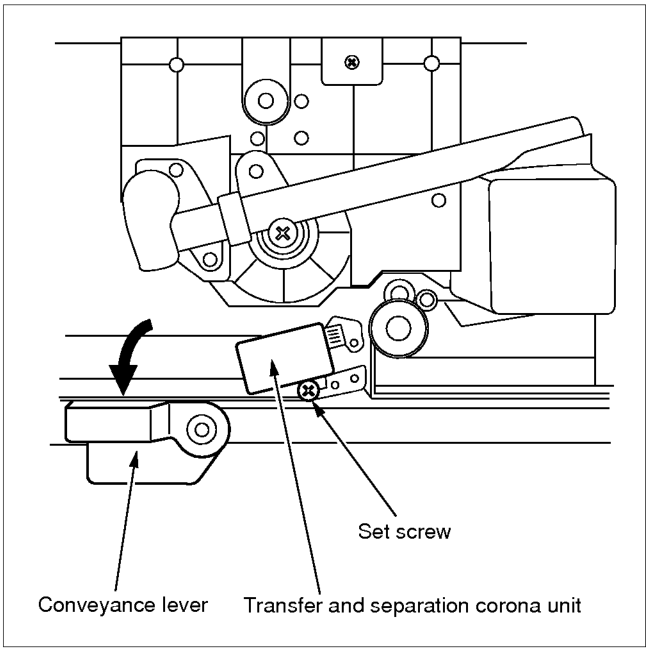
2. Removing and Re-installing the Transfer and Separation Corona Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Open the front door, and release the conveyance lever.

(2) Remove the one set screw, then pull the transfer and separation corona unit forward to remove it.


Set screw
Conveyance lever
Transfer and separation corona unit

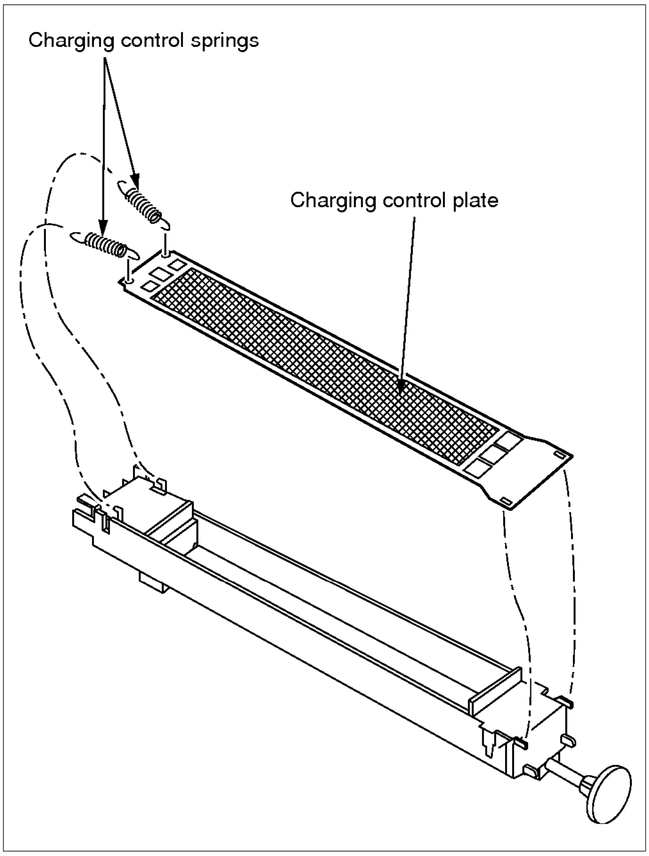
(3) Re-install the transfer and separation corona unit in the opposite sequence to removal.

3. Removing and re-installing the Charging Control Plate

a. Procedure

⚠**Caution: Install the charging control plate so that the end with the round holes has the springs hooking it to the rear of the charging corona unit.**

(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit.
(3) Remove the two charging control springs, then remove the charging control plate.
(4) Remove dirt from the charging control plate by gently dabbing it with a cloth moistened with drum cleaner, then remove any remaining dirt with a blower brush.

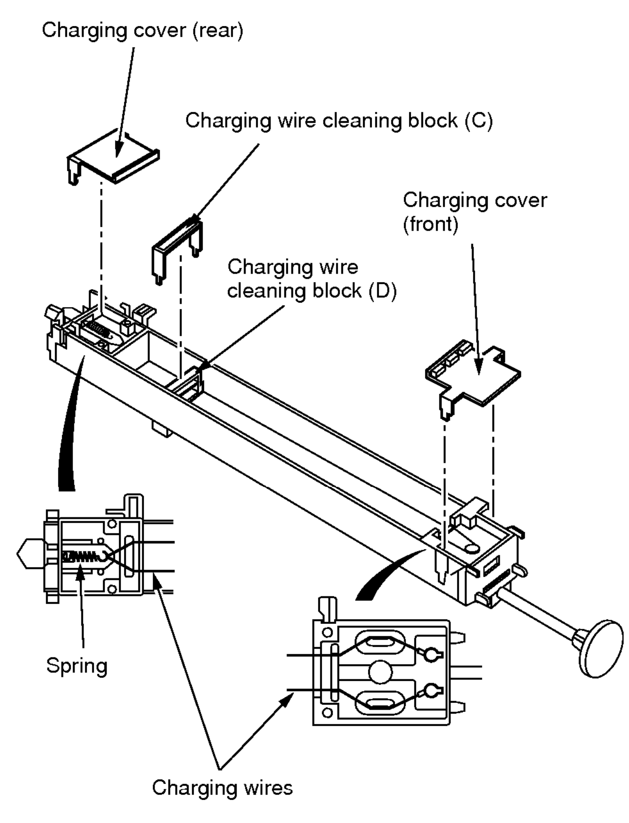

Charging control springs
Charging control plate

(5) Re-install the charging control plate in the opposite sequence to removal.

4. Replacing Charging Wire

a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit.
(3) Remove the charging control plate.
(4) Remove the charging cover (front and rear) each.
(5) Remove the charging wire cleaning block (C).
(6) Remove the charging wire cleaning block (D).
(7) Remove the one spring, then remove the charging wire.


Charging cover (rear)
Charging wire cleaning block (C)
Charging cover (front)
Charging wire cleaning block (D)
Spring
Charging wires

(8) Re-install the charging wire in the opposite sequence to removal.

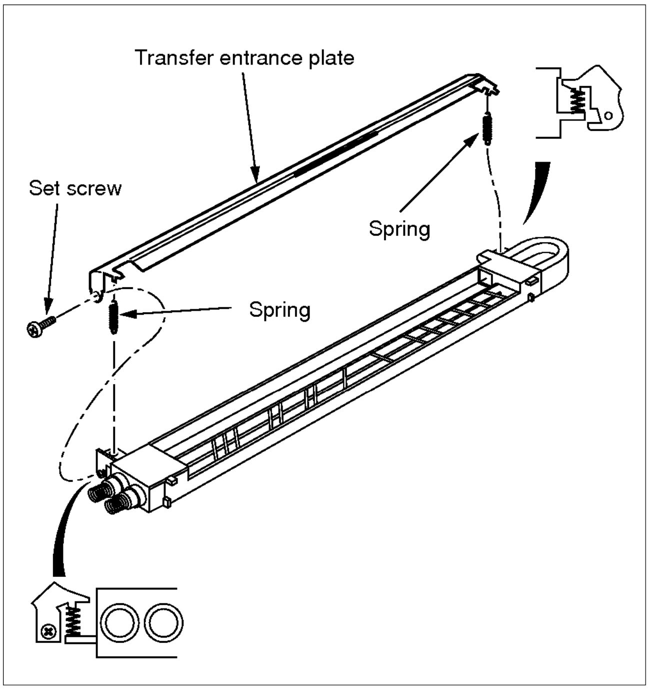
5. Replacing the Transfer and Separation Wires

a. Procedure

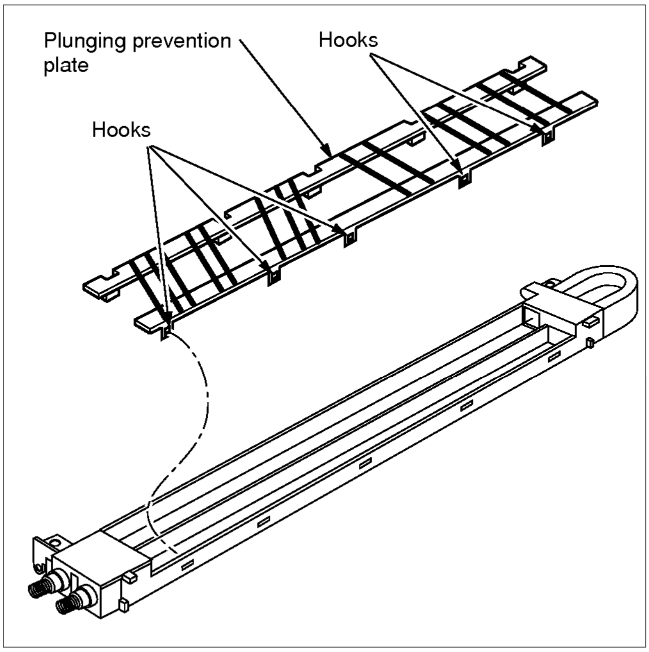
(1) Remove the transfer and separation corona unit from the main body.

(2) While lifting the transfer entrance plate, remove the two springs.

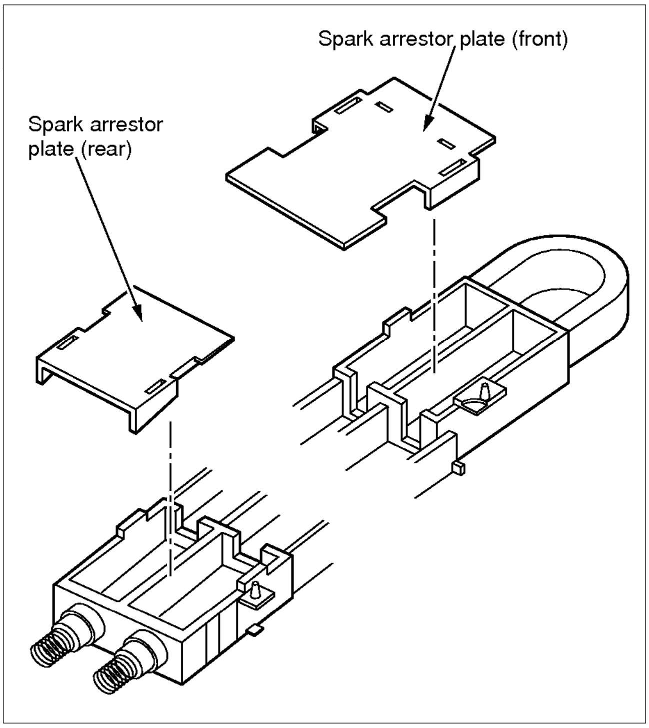
(3) Remove the one set screw, then remove the transfer entrance plate.


Transfer entrance plate
Set screw
Spring
Spring

(4) Remove the five hooks from the transfer and separation corona unit with tweezers, then remove the plunging prevention plate.

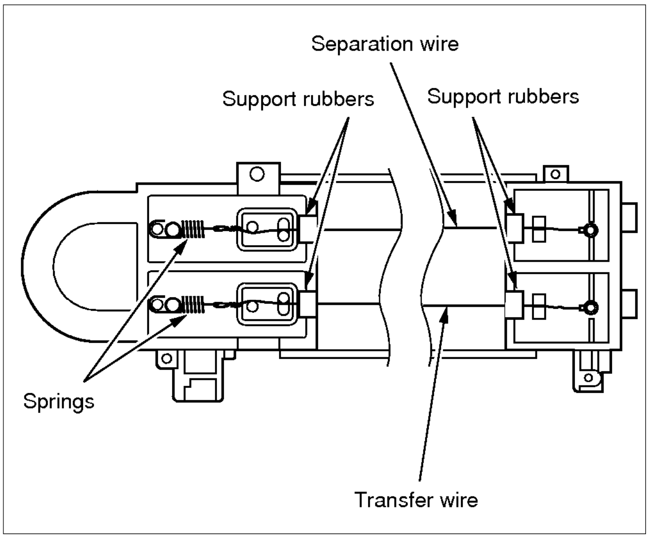

Plunging prevention plate
Hooks
Hooks

(5) Remove the spark arrestor plates (front and rear).


Spark arrestor plate (front)
Spark arrestor plate (rear)

(6) Remove the springs (one spring) for each wire, then remove the transfer wire and separation wire.

(7) Remove the support rubber from each wire.

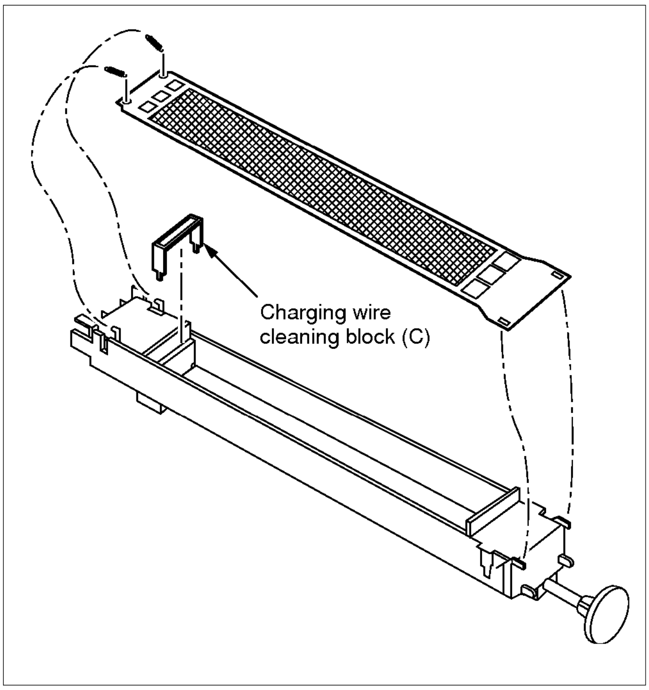

Separation wire
Support rubbers
Support rubbers
Springs
Transfer wire

(8) Re-install the transfer and separation wires in the opposite sequence to removal.

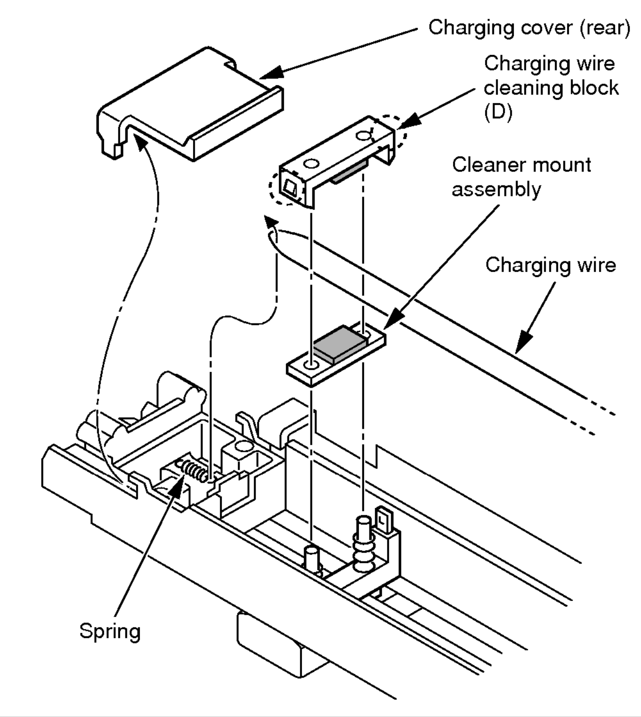
6. Replacing the Charging Wire Cleaning Blocks

a. Procedure

(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit.
(3) Remove the charging control plate.
(4) Remove the charging wire cleaning block (C).

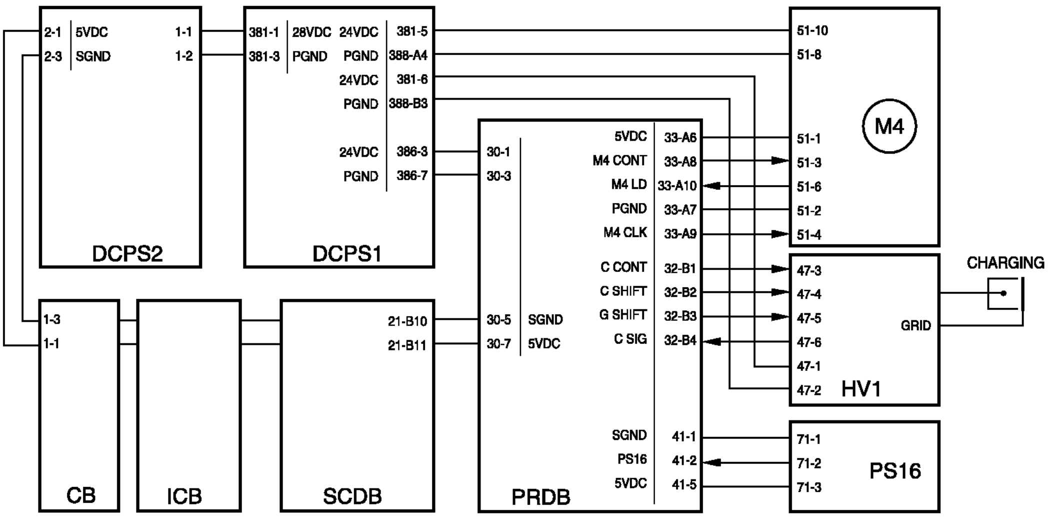

Charging wire
cleaning block (C)

(5) Remove the charging cover (rear).
(6) Remove the charging wire from the spring.
(7) Remove the charging wire cleaning block (D) and cleaner mount assembly.


Charging cover (rear)
Charging wire
cleaning block
(D)
Cleaner mount
assembly
Charging wire
Spring

(8) Re-install the charging wire cleaning blocks in the opposite sequence to removal.

[4] Charging Control


DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 28VDC 24VDC 381-5
381-3 PGND PGND 388-A4
24VDC 381-6
PGND 388-B3
24VDC 386-3
PGND 386-7
PRDB
30-1
30-3
30-5 SGND
30-7 5VDC
5VDC 33-A6
M4 CONT 33-A8
M4 LD 33-A10
PGND 33-A7
M4 CLK 33-A9
C CONT 32-B1
C SHIFT 32-B2
G SHIFT 32-B3
C SIG 32-B4
SGND 41-1
PS16 41-2
5VDC 41-5
M4
51-10
51-8
51-1
51-3
51-6
51-2
51-4
HV1
47-3
47-4
47-5
47-6
47-1
47-2
GRID
CHARGING
PS16
71-1
71-2
71-3
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11

HV1 (High voltage unit 1), which controls charging, operates by means of control signals from the PRDB (Printer drive board), and outputs a high voltage to the charging wires.

1. Operation

Charging control goes ON after the specified time from when M4 (Drum) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF.

a. Charging

A Scorotron charging method is used. 24 VDC input from the DCPS1 is raised to a negative DC high voltage which is then discharged.

b. Charging correction by means of the grid voltage

The grid voltage is output from HV1 to the charging control plate.

2. Signal

a. Input signal

(1) C SIG (HV1 → PRDB)
[L] is output when the spark detection circuit operates and the charging output forcibly goes OFF.

(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

(3) M4 LD (M4 → PRDB)
M4 rotational status detection signal
This signal becomes [L] when M4 reaches the set speed.

b. Output signals

(1) C CONT (PRDB → HV1)
Charging and grid voltage ON/OFF control signal
[L]: Charging and grid voltage ON
[H]: Charging and grid voltage OFF

(2) C SHIFT (PRDB → HV1)
The charging corona unit output level is controlled by means of analog signals from the PRDB.

C SHIFT output range	4 to 10 V
Charging output range	–550 to –1200 µA

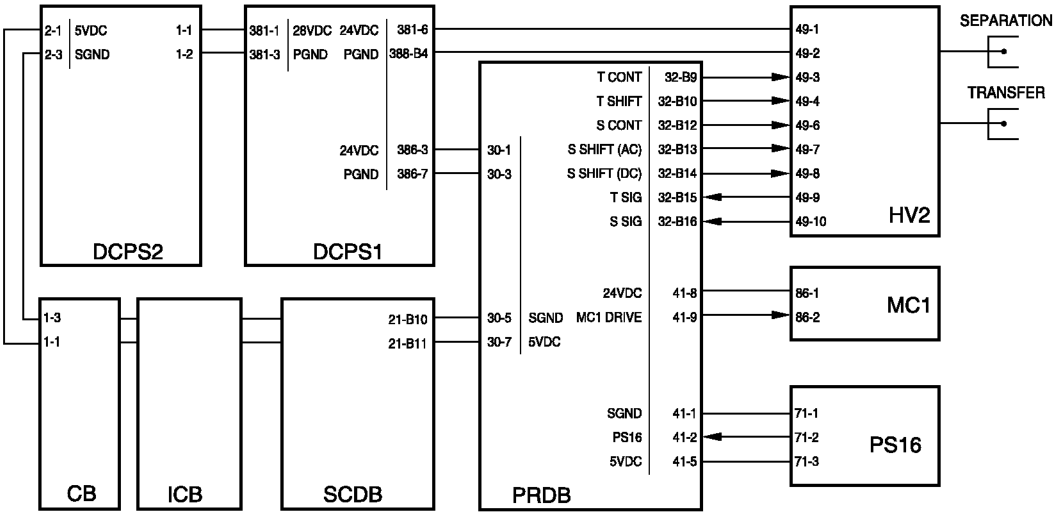
(3) G SHIFT (PRDB → HV1)
The charging grid voltage output level is controlled by analog signals from the PRDB.

G SHIFT output range	4 to 10 V
Grid voltage output range	–500 to –900 V

(4) M4 CONT (PRDB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(5) M4 CLK (PRDB → M4)
Reference clock signal for controlling the speed of M4

[5] Transfer/Separation Control



2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
28VDC
24VDC
381-6
381-3
PGND
PGND
388-B4
24VDC
386-3
PGND
386-7
DCPS1
49-1
49-2
SEPARATION
TRANSFER
T CONT
32-B9
49-3
T SHIFT
32-B10
49-4
S CONT
32-B12
49-6
30-1
S SHIFT (AC)
32-B13
49-7
30-3
S SHIFT (DC)
32-B14
49-8
T SIG
32-B15
49-9
S SIG
32-B16
49-10
HV2
24VDC
41-8
86-1
MC1
30-5
SGND
MC1 DRIVE
41-9
86-2
30-7
5VDC
1-3
1-1
21-B10
21-B11
SGND
41-1
71-1
PS16
41-2
71-2
PS16
5VDC
41-5
71-3
CB
ICB
SCDB
PRDB

Transfer and separation corona unit are controlled by the PRDB (printer drive board) and HV2 (high voltage unit 2).

1. Operation

Transfer and separation corona discharge go ON after the specified time from when MC1 (registration) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF.

a. Transfer

A positive DC high voltage is used for transfer.

b. Separation

An AC high voltage is used for separation.

2. Signals

a. Input signals

(1) T SIG (HV2 → PRDB)
[L] is output when the transfer spark detection circuit operates.

(2) S SIG (HV2 → PRDB)
[L] is output when the separation spark detection circuit operates.

(3) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) T CONT (PRDB → HV2)
Transfer corona unit ON/OFF control signal.
When this signal is [L], the transfer corona unit goes ON.

(2) T SHIFT (PRDB → HV2)
Transfer corona unit output level control signal
This signal controls the transfer corona unit output level using analog signals from the PRDB.

T SHIFT output range	4 to 10 V
Transfer voltage output range	40 to 450 µA

(3) S CONT (PRDB → HV2)
Separation corona unit ON/OFF control signal
When this signal is [L], the separation corona unit goes ON.

(4) S SHIFT (AC) (PRDB → HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (AC component) using analog signals from the PRDB.

S SHIFT (AC) output range	4 to 10 V
Separation AC voltage output range	2.8 to 5.5 kV

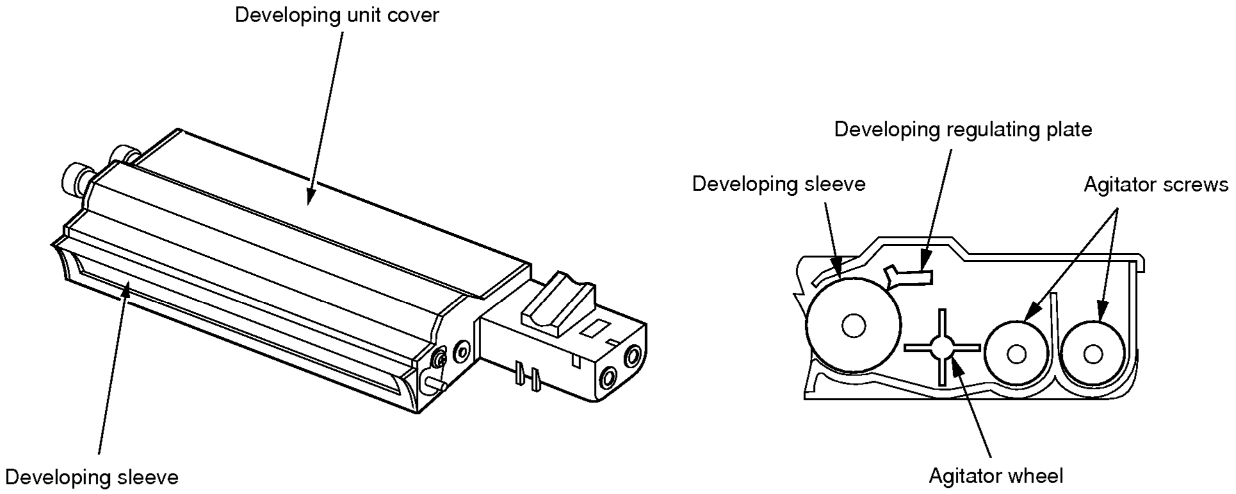
(5) S SHIFT (DC) (PRDB → HV2)
Separation corona unit output level control signal
This signal controls the separation corona unit output level (DC bias component) using analog signals from the PRDB.

S SHIFT (DC) output range	4 to 10 V
Separation DC bias voltage output range	0 to –300 µA

(6) MC1 DRIVE (PRDB → MC1)
MC1 drive control signal
[L]: MC1 ON
[H]: MC1 OFF

DEVELOPING UNIT

[1] Construction


Developing unit cover
Developing sleeve
Developing regulating plate
Developing sleeve
Agitator screws
Agitator wheel

[2] Mechanism

Mechanisms	Methods
Developing	2-component developer
Developing bias	DC bias
Developer agitation	Main agitation Auxiliary agitation

1. Developing unit drive

The developing unit is driven by the developing drive motor (M3).

The drive is transmitted from the developing drive input gear (1) to the agitation section.

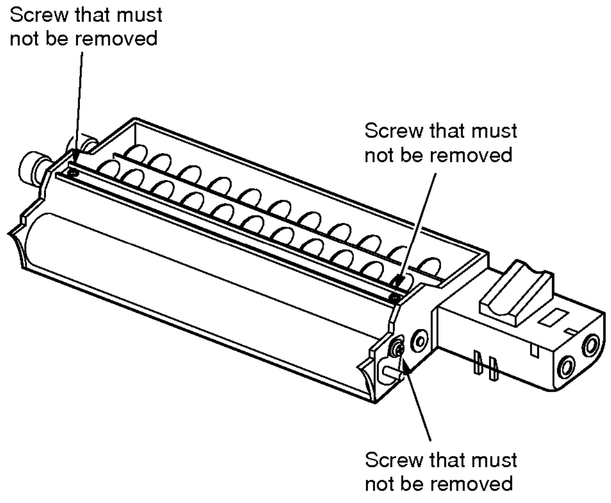
The drive is transmitted from the developing drive input gear (2) via the developing magnet clutch (MC2) to the developing sleeve. (Refer to the drive system diagram.)

[3] Disassembly and Re-assembly

1. Screws that must not be removed

△3 **Caution:** Never do any adjustments, remove set screws, or any similar task at the market in regards to the items below.

(1) The two set screws of the developing regulating plate.
(2) The one set screw of the magnet angle adjustment plate.

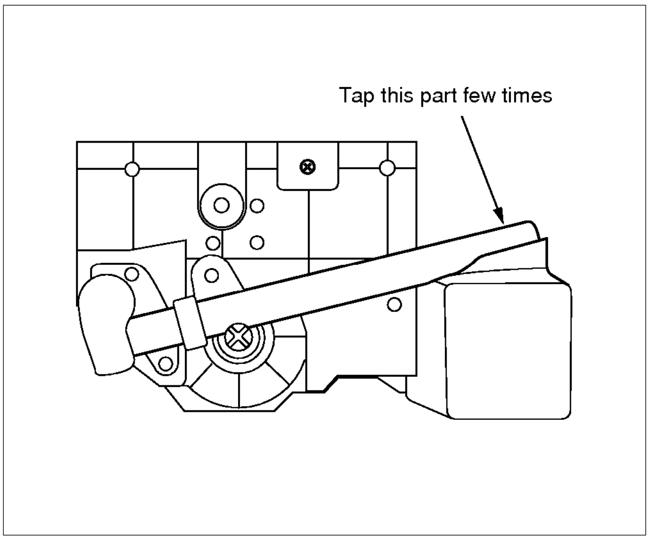

Screw that must not be removed
Screw that must not be removed
Screw that must not be removed

2. Removing and Re-installing the Developing Unit

a. Procedure

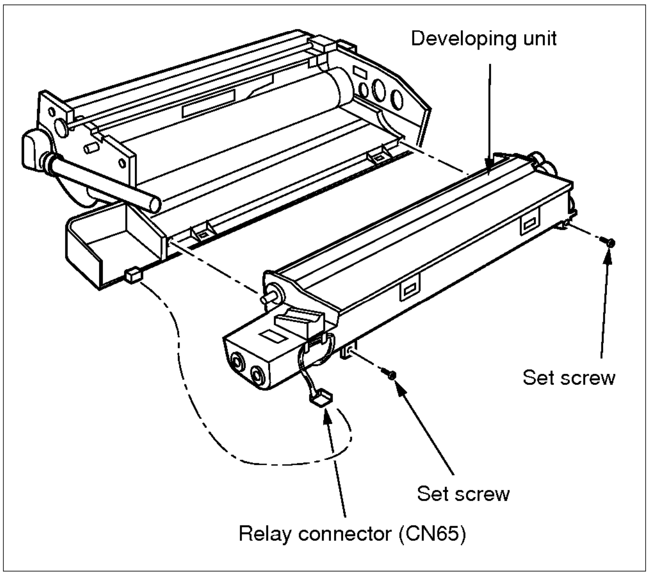
(1) Remove the drum unit from the main body.

(2) Tap the recycle pipe a few times around the discharge opening to drop recycled toner into the developing unit.

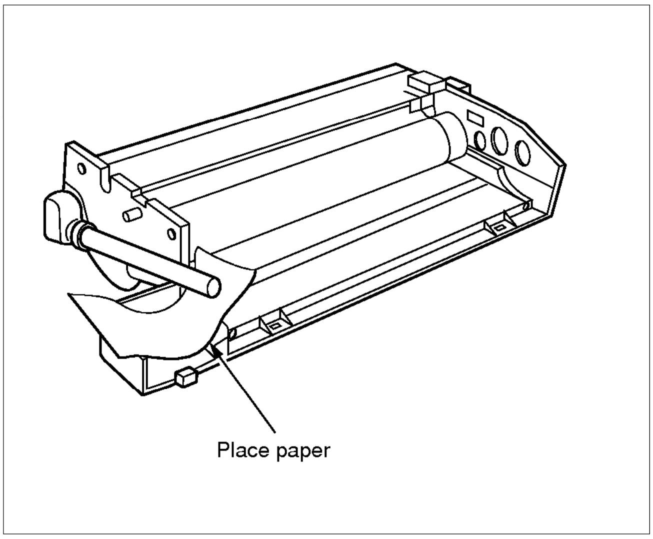

Tap this part few times

(3) Disconnect the relay connector (CN65).

(4) Loosen the two set screws, then remove the developing unit from the drum unit.


Developing unit
Set screw
Set screw
Relay connector (CN65)

(5) Place paper under the toner exit of the toner recycle pipe.

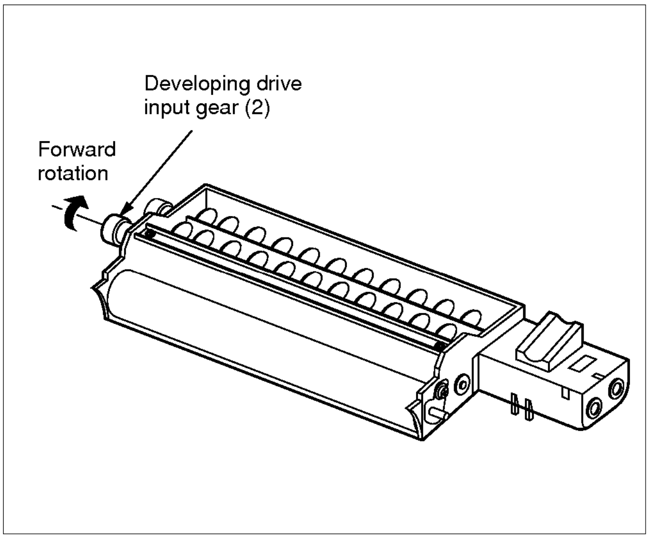

Place paper

(6) Re-install the developing unit in the opposite sequence to removal.

3. Replacing the developer

Caution:

1. When replacing the developer, take care that dirt does not become mixed with it.
2. After supplying fresh developer, NEVER rotate the developing drive input gear (2) in the clockwise (reverse direction) direction.

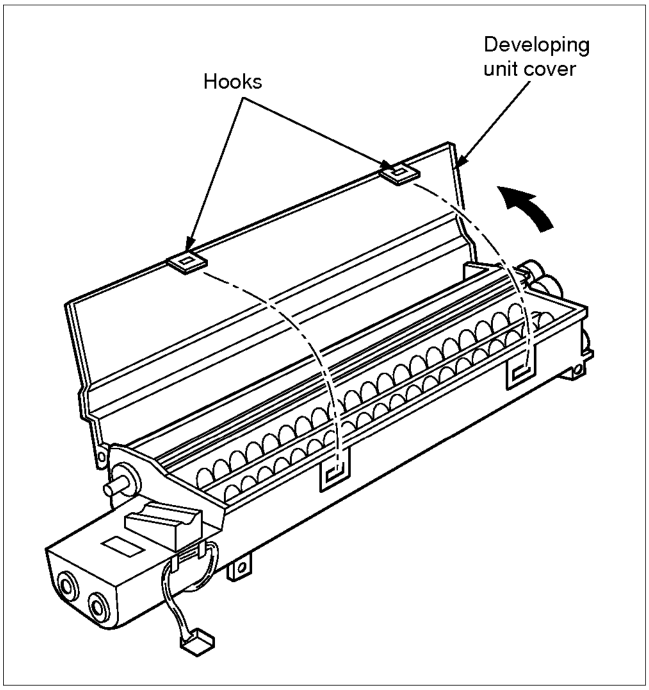

Developing drive input gear (2)
Forward rotation

a. Procedure

(1) Remove the drum unit from the main body.

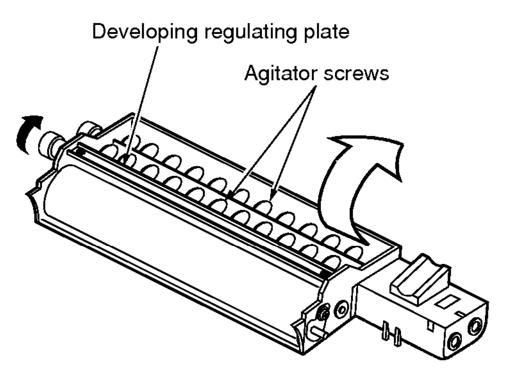
(2) Remove the developing unit from the drum unit.

(3) Release the hooks on the developing unit cover, then lift up and remove the cover.


Hooks
Developing unit cover

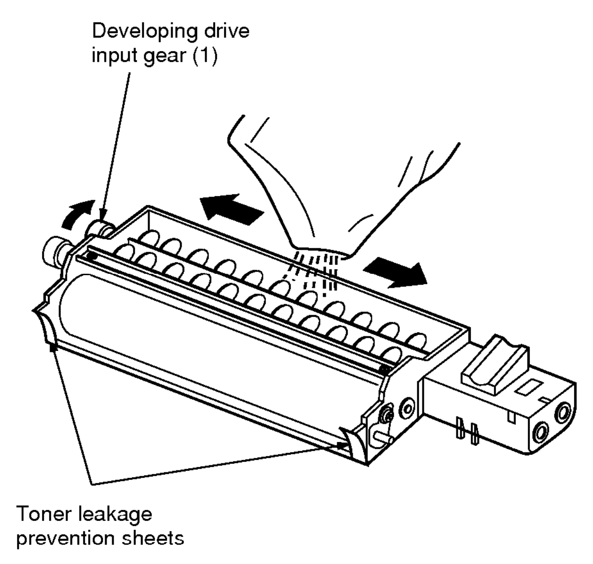
(4) Tilt the developing unit so that the agitator screw side is downward, then rotate the developing drive input gear (2) in the counterclockwise direction until all of the developer adhering to the inside of the developing unit and the developing sleeve is discharged.

(5) Wipe the developer remaining on the developing regulation plate.


Developing regulating plate
Agitator screws

(6) Supply fresh developer evenly from the top of the agitator screw.

(7) Rotate the developing drive input gear (1) in the counterclockwise direction until all of the developer enters the inside of the developing unit.


Developing drive input gear (1)
Toner leakage prevention sheets

(8) Repeat steps (6) and (7) until all of the developer has been supplied to the developing unit.

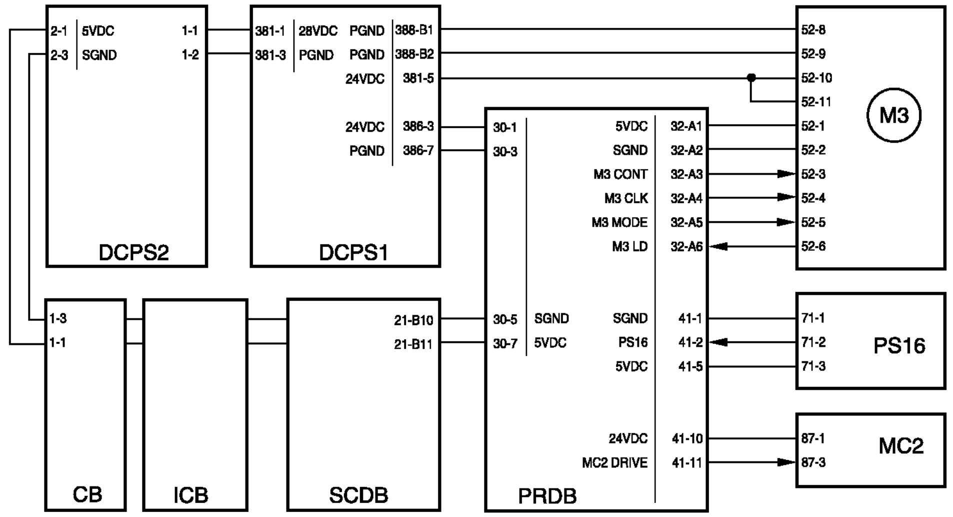
(9) Rotate the developing drive input gear (2) in the counterclockwise direction, and check that the developer bristles along the entire length of the developing sleeve.

(10) Install the developing cover

(11) Check that the toner leakage prevention sheet is not caught by the developing unit lid.

(12) Install the developing unit on the drum unit.

[4] M3 (developing drive) Control


DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 28VDC PGND 388-B1
381-3 PGND PGND 388-B2
24VDC 381-5
24VDC 386-3
PGND 386-7
PRDB
30-1 5VDC 32-A1
30-3 SGND 32-A2
M3 CONT 32-A3
M3 CLK 32-A4
M3 MODE 32-A5
M3 LD 32-A6
30-5 SGND SGND 41-1
30-7 5VDC PS16 41-2
5VDC 41-5
24VDC 41-10
MC2 DRIVE 41-11
M3
52-8
52-9
52-10
52-11
52-1
52-2
52-3
52-4
52-5
52-6
PS16
71-1
71-2
71-3
MC2
87-1
87-3
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11

M3 (developing drive) is controlled by the PRDB (Printer drive board).

1. Operation

M3 is a 24 V drive DC motor which drives the developing sleeve, agitator wheel and agitator screw. M3 is PLL-controlled by feedback signals from a speed sensor installed inside M3 itself, maintaining it at a constant speed.
M3 goes ON after the specified time from when the Start button is pressed, and goes OFF again after the specified time from the completion of charging control.
MC2 (developing) goes ON after the specified time from when M3 goes, and goes OFF again after the specified time from PS16 (registration) going OFF

2. Signals

a. Input signals

(1) M3 LD (M3 → PRDB)
M3 rotational status detection signal
This signal becomes [L] when M3 reaches the set speed.

(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

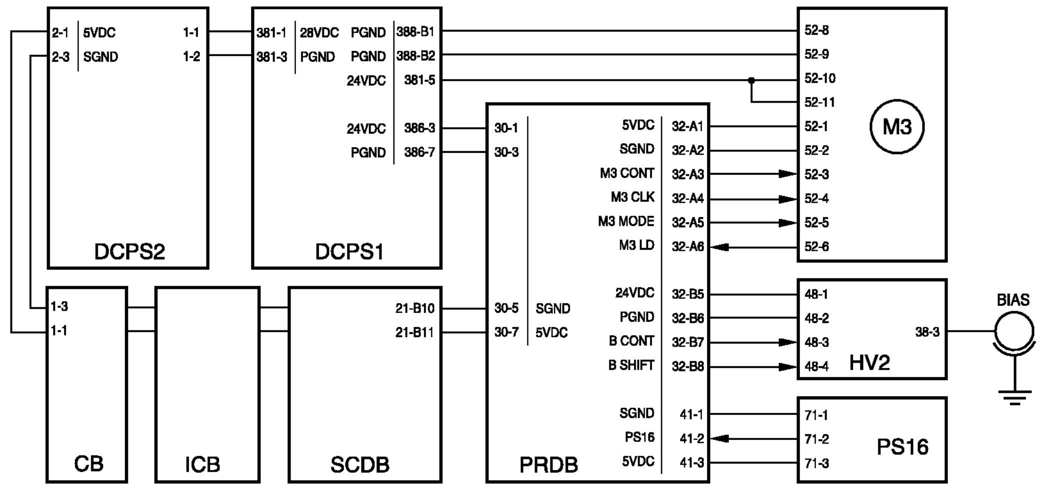
(1) M3 CONT (PRDB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

(2) M3 CLK (PRDB → M3)
M3 rotational speed control reference clock signal

(3) M3 MODE (PRDB → M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(4) MC2 DRIVE (PRDB → MC2)
MC2 drive control signal
[L]: MC2 ON
[H]: MC2 OFF

[5] Developing Bias Control


2-1 5VDC 1-1
2-3 SGND 1-2
DCPS2
381-1 28VDC PGND 388-B1
381-3 PGND PGND 388-B2
24VDC 381-5
24VDC 386-3
PGND 386-7
DCPS1
52-8
52-9
52-10
52-11
52-1
52-2
52-3
52-4
52-5
52-6
M3
30-1
30-3
5VDC 32-A1
SGND 32-A2
M3 CONT 32-A3
M3 CLK 32-A4
M3 MODE 32-A5
M3 LD 32-A6
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB
30-5 SGND
30-7 5VDC
24VDC 32-B5
PGND 32-B6
B CONT 32-B7
B SHIFT 32-B8
SGND 41-1
PS16 41-2
5VDC 41-3
PRDB
48-1
48-2
48-3
48-4
38-3
HV2
BIAS
71-1
71-2
71-3
PS16

The developing bias is controlled by the PRDB (printer drive board) via the HV2 (high voltage unit 2).

1. Operation

The developing bias is applied to the sleeve after the specified time from when the M3 (developing drive) goes ON, and goes OFF again after the specified time from PS16 (registration) going OFF

2. Signals

a. Input signals

(1) M3 LD (M3 → PRDB)
M3 rotational status detection signal
This signal becomes [L] when M3 reaches the set speed.

(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) B CONT (PRDB → HV2)
Developing bias ON/OFF control signal
When this signal is [L], the developing bias goes ON, and a high voltage is output.

(2) B SHIFT (PRDB → HV2)
Developing bias level control signal
This signal controls the output level of the developing bias by means of analog signals from the PRDB.

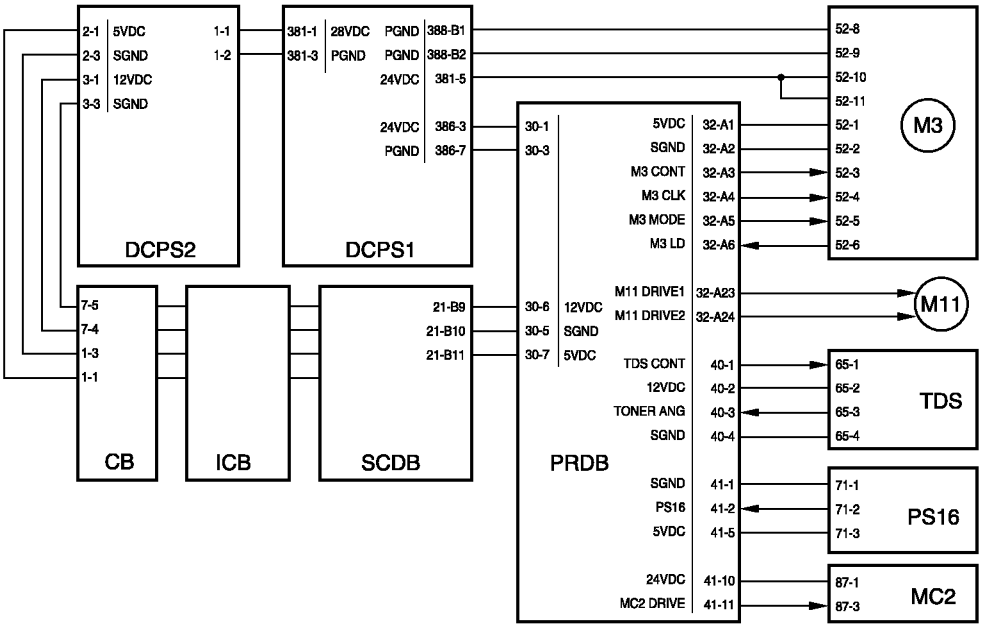
B SHIFT output range	2 to 8 V
Bias voltage output range	–400 to –700 VDC

(3) M3 CONT (PRDB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

(4) M3 CLK (PRDB → M3)
M3 rotational speed control reference clock signal

(5) M3 MODE (PRDB → M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

[6] Toner Density Control


2-1
5VDC
2-3
SGND
3-1
12VDC
3-3
SGND
1-1
1-2
DCPS2
381-1
28VDC
381-3
PGND
PGND
388-B1
PGND
388-B2
24VDC
381-5
24VDC
386-3
PGND
386-7
DCPS1
7-5
7-4
1-3
1-1
CB
ICB
21-B9
21-B10
21-B11
SCDB
30-1
30-3
30-6
12VDC
30-5
SGND
30-7
5VDC
5VDC
32-A1
SGND
32-A2
M3 CONT
32-A3
M3 CLK
32-A4
M3 MODE
32-A5
M3 LD
32-A6
M11 DRIVE1
32-A23
M11 DRIVE2
32-A24
TDS CONT
40-1
12VDC
40-2
TONER ANG
40-3
SGND
40-4
PRDB
SGND
41-1
PS16
41-2
5VDC
41-5
24VDC
41-10
MC2 DRIVE
41-11
52-8
52-9
52-10
52-11
52-1
52-2
52-3
52-4
52-5
52-6
M3
M11
65-1
65-2
65-3
65-4
TDS
71-1
71-2
71-3
PS16
87-1
87-3
MC2

The toner density is controlled by the TDS (toner density sensor), M11 (toner supply 2) and the PRDB (printer drive board).

1. Operation

a. Toner density detection

The TDS detects the density of the toner in the developing unit using an L detection method, and outputs an analog voltage signal that is proportion to the density to the PRDB.

The PRDB compares the detected voltage with the reference voltage corresponding to the initial density of the developer, and judges the necessity of supplying toner.

b. Toner supply operation to the developing unit

M11 is driven by 24 VDC supplied from the PRDB (printer drive board).

(1) When the power is switched ON

After the power is switched ON and the agitator screw is driven by the M3 (developing drive) via the MC2 (developing), then after the specified time the toner density is read.

This density is compared with the initial density of the developer, and if the density is low, M11 goes ON and toner supply takes place. (recovered until its initial density)

(2) During a copy operation

The relationship between the TDS output voltage and the toner supply time is as follows.

TDS output voltage	Toner supply time
1.99 V or lower	0 sec
2.00 to 2.09 V	0.24 sec
2.10 to 2.17 V	0.48 sec
2.18 to 2.27 V	0.72 sec
2.28 to 2.34 V	0.96 sec
2.35 to 2.42 V	1.20 sec
2.43 V or higher	1.80 sec

2. Signals

a. Input signals

(1) TONER ANG (TDS → PRDB)

An analog voltage proportional to the toner density is output.

(2) M3 LD (M3 → PRDB)

M3 rotational status detection signal

This signal becomes [L] when M3 reaches the set speed.

(3) PS16 (PS16 → PRDB)

Paper detection signal used for detecting the paper feed temporary stop position.

PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

b. Output signals

(1) TDS CONT (PRDB → TDS)
TDS output voltage adjustment signal
Output voltage range: 3 to 8 V

(2) M11 DRIVE1, 2 (PRDB → M11)
M11 drive control signal

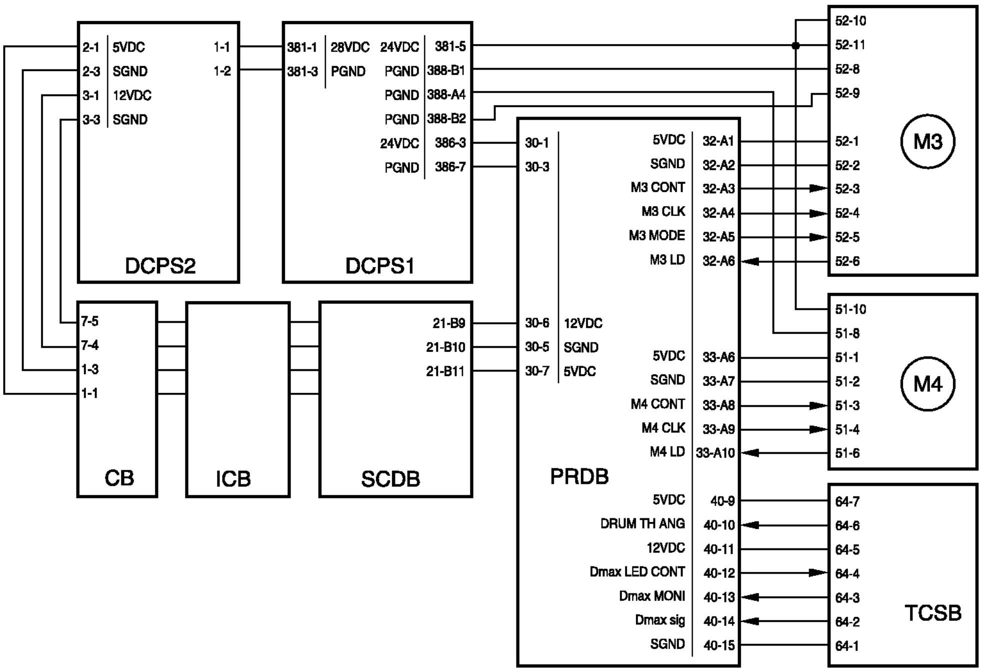
(3) M3 CLK (PRDB → M3)
M3 rotational speed control reference clock signal

(4) M3 CONT (PRDB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

(5) M3 MODE (PRDB → M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(6) MC2 DRIVE (PRDB → MC2)
MC2 drive control signal
[L]: MC2 ON
[H]: MC2 OFF

[7] Dmax Control



2-1
5VDC
1-1
2-3
SGND
1-2
3-1
12VDC
3-3
SGND
DCPS2
381-1
28VDC
24VDC
381-5
381-3
PGND
PGND
388-B1
PGND
388-A4
PGND
388-B2
24VDC
386-3
PGND
386-7
DCPS1
7-5
7-4
1-3
1-1
CB
ICB
21-B9
21-B10
21-B11
SCDB
30-1
30-3
5VDC
32-A1
SGND
32-A2
M3 CONT
32-A3
M3 CLK
32-A4
M3 MODE
32-A5
M3 LD
32-A6
30-6
12VDC
30-5
SGND
30-7
5VDC
5VDC
33-A6
SGND
33-A7
M4 CONT
33-A8
M4 CLK
33-A9
M4 LD
33-A10
PRDB
5VDC
40-9
DRUM TH ANG
40-10
12VDC
40-11
Dmax LED CONT
40-12
Dmax MONI
40-13
Dmax sig
40-14
SGND
40-15
52-10
52-11
52-8
52-9
52-1
52-2
52-3
52-4
52-5
52-6
M3
51-10
51-8
51-1
51-2
51-3
51-4
51-6
M4
64-7
64-6
64-5
64-4
64-3
64-2
64-1
TCSB

Dmax control is carried out by the TCSB (Toner control sensor board), M4 (drum), M3 (developing drive), and so on. These parts are controlled by the PRDB (Printer drive board).

1. Operation

Dmax control is intended to align the maximum density for each machine with the reference level.

(1) Contents of implementation
    Latent images are created several times at the maximum exposure, the images are developed while the rotational speed of the sleeve is varied, then each density is read by the PD1 on the TCSB.
    The rotational speed of the sleeve when the density reaches the reference level is memorized as the optimum sleeve speed, then subsequently developing is carried out at this sleeve speed until Dmax correction takes place next.

(2) Implementation timing
    a) When the power is switched ON
    b) At 500 copies
    c) At 1000 copies

2. Signals

a. Input signals

(1) Dmax sig (TCSB → PRDB)
    Output voltage of the Dmax value detection sensor (PD1) on the TCSB
    Reference voltage: 1.5 V

(2) Dmax MONI (TCSB → PRDB)
    This signal monitors the light reflected from the surface of the drum (without toner), and corrects the voltage applied to the Dmax value detection LED so that the output becomes 6 V (calibration).
    Reference voltage: 6 V
    <Implementation timing>
    Calibration takes place before Dmax correction.

(3) M3 LD (M3 → PRDB)
    M3 rotational status detection signal
    This signal becomes [L] when M3 reaches the set speed.

(4) M4 LD (M4 → PRDB)
    M4 rotational status detection signal
    This signal becomes [L] when M4 reaches the set speed.

(5) DRUM TH ANG (TCSB → PRDB)
    Drum surface temperature detection signal

b. Output signals

(1) Dmax LED CONT (PRDB → TCSB)
Dmax value detection LED ON/OFF control signal
[L]: LED ON
[H]: LED OFF

(2) M3 CONT (PRDB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

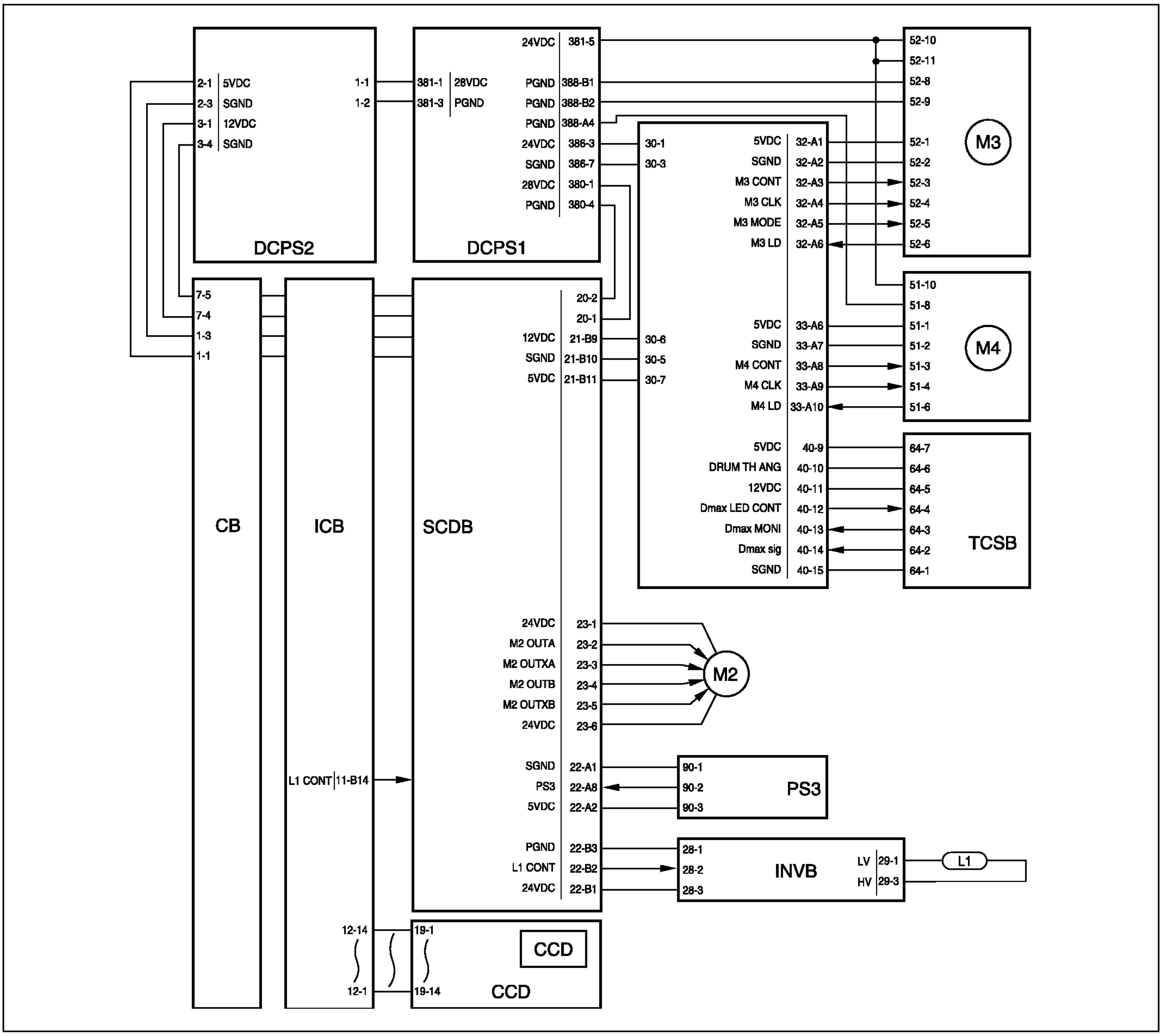
(3) M3 CLK (PRDB → M3)
M3 rotational speed control reference clock signal

(4) M3 MODE (PRDB → M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(5) M4 CONT (PRDB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(6) M4 CLK (PRDB → M4)
Reference clock signal for controlling the speed of M4

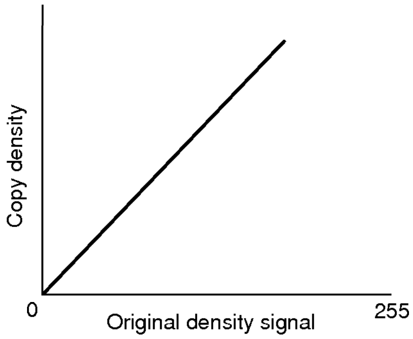
[8] Gradation Correction Control


DCPS2
2-1 5VDC
2-3 SGND
3-1 12VDC
3-4 SGND
1-1
1-2
DCPS1
381-1 28VDC
381-3 PGND
24VDC 381-5
PGND 388-B1
PGND 388-B2
PGND 388-A4
24VDC 386-3
SGND 386-7
28VDC 380-1
PGND 380-4
30-1
30-3
5VDC 32-A1
SGND 32-A2
M3 CONT 32-A3
M3 CLK 32-A4
M3 MODE 32-A5
M3 LD 32-A6
52-10
52-11
52-8
52-9
52-1
52-2
52-3
52-4
52-5
52-6
M3
51-10
51-8
51-1
51-2
51-3
51-4
51-6
M4
5VDC 33-A6
SGND 33-A7
M4 CONT 33-A8
M4 CLK 33-A9
M4 LD 33-A10
30-6
30-5
30-7
5VDC 40-9
DRUM TH ANG 40-10
12VDC 40-11
Dmax LED CONT 40-12
Dmax MONI 40-13
Dmax sig 40-14
SGND 40-15
64-7
64-6
64-5
64-4
64-3
64-2
64-1
TCSB
CB
7-5
7-4
1-3
1-1
ICB
L1 CONT 11-B14
12-14
12-1
SCDB
20-2
20-1
12VDC 21-B9
SGND 21-B10
5VDC 21-B11
24VDC 23-1
M2 OUTA 23-2
M2 OUTXA 23-3
M2 OUTB 23-4
M2 OUTXB 23-5
24VDC 23-6
M2
SGND 22-A1
PS3 22-A8
5VDC 22-A2
90-1
90-2
90-3
PS3
PGND 22-B3
L1 CONT 22-B2
24VDC 22-B1
28-1
28-2
28-3
INVB
LV 29-1
HV 29-3
L1
19-1
19-14
CCD
CCD

Gradation correction control is intended to stabilize the reproduction density of halftone for each machine.

1. Operation

Gradation density control is an operation in which the gradation characteristics of the developing toner density with respect to the exposure in the image forming section (the drum and peripheral units) are detected, then processed so that the relationship between the original density and the copy density is linear.



(1) Contents of implementation

1) During initial adjustment (adjustment by the service mode)
During image quality adjustment in the 36 mode, an SGU test pattern (before gradation correction) is output, and read by the scanner (CCD) and memorized.
(For details, refer to the “Adjustment section”.)

2) During normal operation (automatic adjustment)
Toner patch patterns (gradation patterns) of different densities are formed on the drum, and each toner patch density is read by the Dmax sensor and memorized as drum gradation data.
The gradation correction value is computed based on the gradation data of the SGU test pattern read by the CCD and the drum gradation data read by the Dmax sensor, and used to optimally correct the laser output.

(2) Implementation timing

1) Initial adjustment
Before the machine is shipped or after the drum or developer is replaced

2) Normal operation

a) When the machine is switched ON first thing in the morning

b) At 500 copies

2. Signals

a. Input signals

(1) Dmax sig (TCSB → PRDB)
Output voltage of the Dmax value detection sensor (PD1) on the TCSB
Reference voltage: 1.5 V

(2) Dmax MONI (TCSB → PRDB)
This signal monitors the light reflected from the surface of the drum (without toner), and corrects the voltage applied to the Dmax value detection LED so that the output becomes 6 V (calibration).

(3) PS3 (PS3 → SCDB → ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position
[H]: Exposure unit is not in the home position

(4) M3 LD (M3 → PRDB)
M3 rotational status detection signal
This signal becomes [L] when M3 reaches the set speed.

(5) M4 LD (M4 → PRDB)
M4 rotational status detection signal
This signal becomes [L] when M4 reaches the set speed.

(6) DRUM TH ANG (TCSB → PRDB)
Drum surface temperature detection signal

b. Output signals

(1) Dmax LED CONT (PRDB → TCSB)
Dmax value detection LED ON/OFF control signal
[L]: LED ON
[H]: LED OFF

(2) M3 CONT (PRDB → M3)
M3 drive control signal
[L]: M3 ON
[H]: M3 OFF

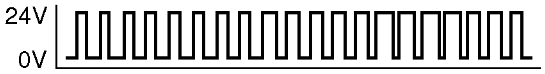
(3) M3 CLK (PRDB → M3)
M3 rotational speed control reference clock signal

(4) M3 MODE (PRDB → M3)
M3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(5) M4 CONT (PRDB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(6) M4 CLK (PRDB → M4)
Reference clock signal for controlling the speed of M4

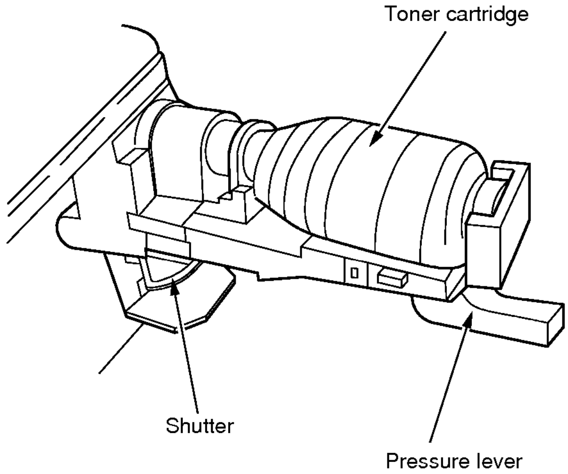
(7) M2 OUTA, OUTXA, OUTB, OUTXB (SCDB → M2)
M2 (scanner drive) ON/OFF drive signal



(8) L1 CONT (ICB → SCDB → INVB)
L1 ON/OFF control signal
[L]: L1 ON
[H]: L1 OFF

TONER SUPPLY UNIT

[1] Construction


Toner cartridge
Shutter
Pressure lever

[2] Mechanism

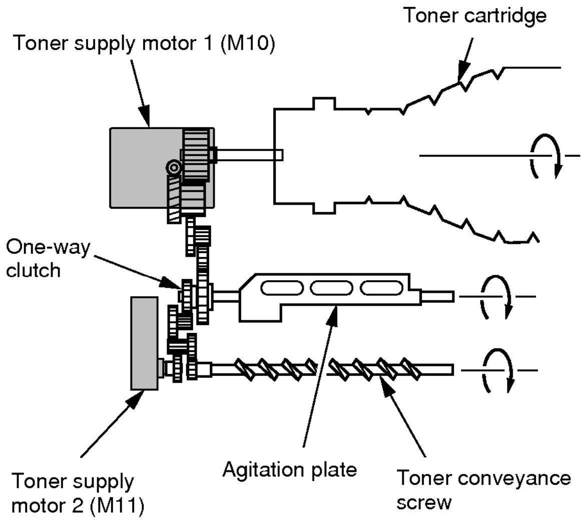
	Mechanisms	Methods
	Toner supply	Screw conveyance
	Toner level detection	Piezoelectric method 120g±20g
*1	Toner agitation	Agitation plate
*2	Toner cartridge	Rotating cartridge method Capacity 600g
	Toner leakage prevention	Toner supply shutter

*1: Toner agitation

The drive is transmitted from the following two motors via a gear group to the agitation plate.

a. Toner supply motor 1 (M10)
   For toner cartridge drive
b. Toner supply motor 2 (M11)
   For toner conveyance screw drive

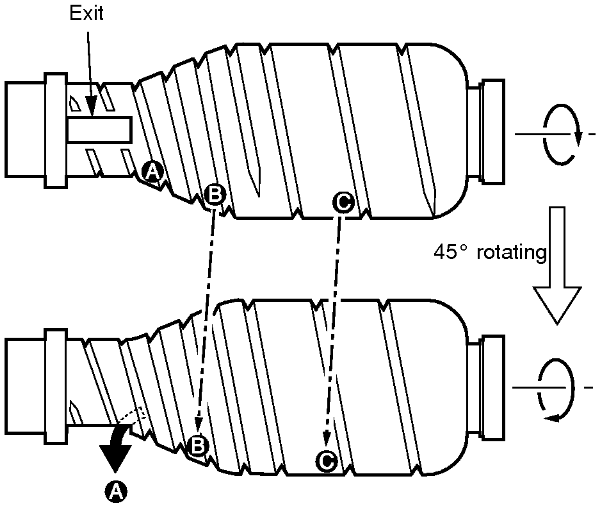
The agitation plate rotates faster in rotation of the toner supply motor 2 (M11) than the toner supply motor 1 (M10).
When two motors rotate simultaneously, the drive of the toner supply motor 1 (M10) is transmitted by the one way clutch to the agitation plate shaft.


Toner cartridge
Toner supply motor 1 (M10)
One-way clutch
Toner supply motor 2 (M11)
Agitation plate
Toner conveyance screw

*2: Toner cartridge

When the toner cartridge rotates, toner moves to the cartridge exit along the spiral groove marked on the surface of the toner cartridge.

When the cartridge points down, toner flow to the toner supply unit agitation and conveyance section.



Toner is supplied to the agitation/conveyance section of the toner supply unit.

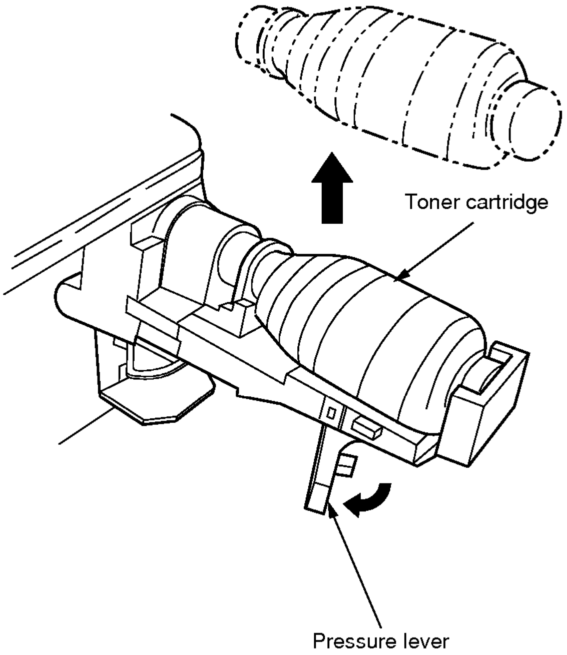
[3] Disassembly and Re-assembly

1. Removing and Re-installing the Toner Cartridge

a. Procedure

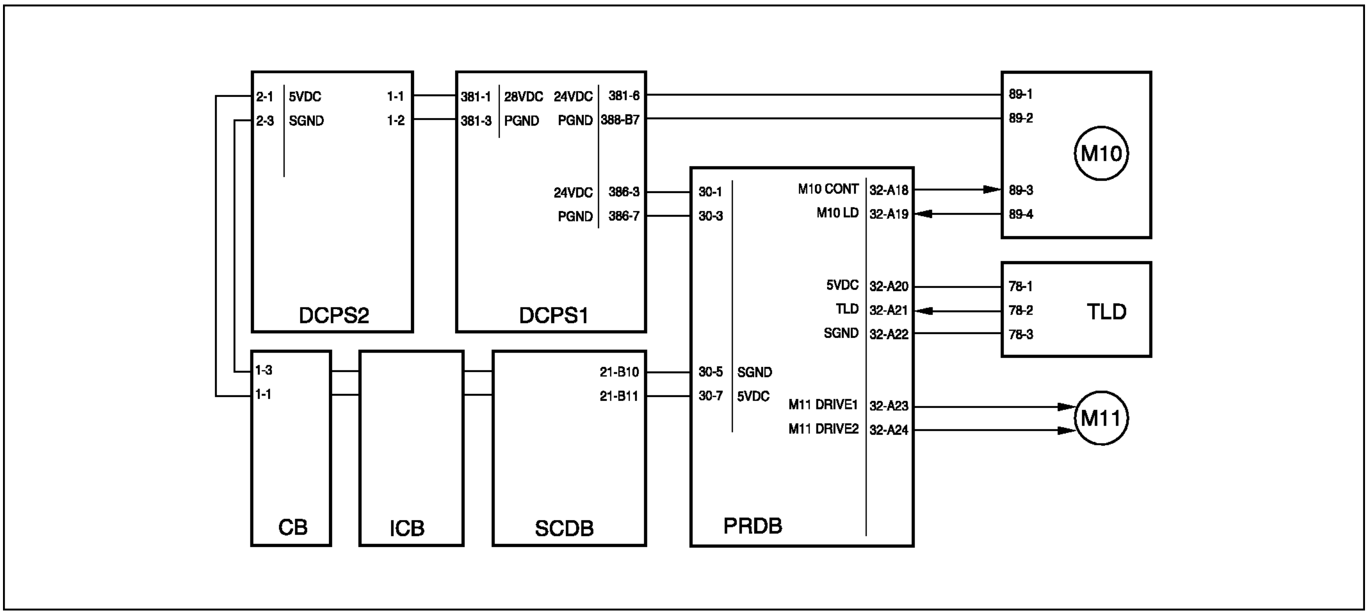
(1) Open the front door, then swing out the toner supply unit.

(2) Pull the pressure lever, then remove the toner cartridge.



(3) Re-install the toner cartridge in the opposite sequence to removal.

[4] Toner Level Detection Control


2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
28VDC
24VDC
381-6
381-3
PGND
PGND
388-B7
24VDC
386-3
PGND
386-7
DCPS1
30-1
30-3
M10 CONT
32-A18
M10 LD
32-A19
5VDC
32-A20
TLD
32-A21
SGND
32-A22
30-5
SGND
30-7
5VDC
M11 DRIVE1
32-A23
M11 DRIVE2
32-A24
PRDB
89-1
89-2
M10
89-3
89-4
78-1
78-2
78-3
TLD
M11
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB

Toner level detection control is carried out by the TLD (toner level detector) and PRDB (printer drive board).

1. Operation

a. Toner level detection

A piezoelectric device is used as the TLD.
When the level of toner in the toner supply unit becomes low, the "supply toner" signal is output to the PRDB. As a result, a message is displayed on the display board via the OB1 (operation board 1).

b. Detection timing

The detection timing is as follows.
- When the machine is switched ON
- When the front door is opened and closed
- During a copy operation

c. Toner supply operation to toner supply unit

When TLD detects a no-toner condition, M10 (toner supply 1) goes ON and supplies toner.

2. Signals

a. Input signals

(1) TLD (TLD → PRDB)
When the level of toner in the toner supply unit becomes low, this signal becomes [L], and a message is displayed on the LCD connected to OB1.

(2) M10 LD (M10 → PRDB)
M10 rotational status detection signal
This signal becomes [L] when M10 reaches the set speed.

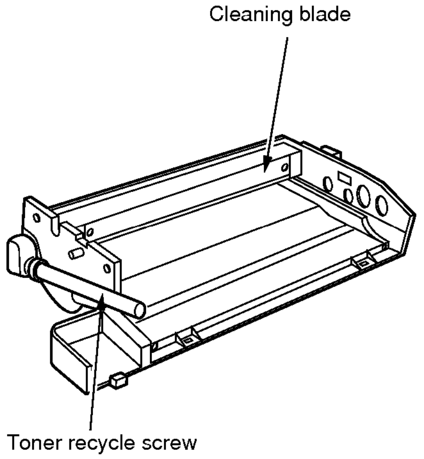
b. Output signals

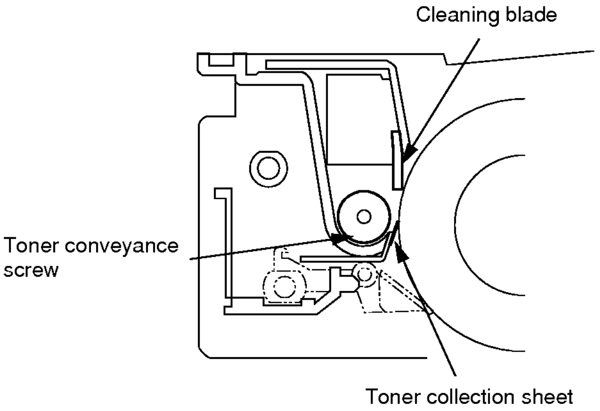
(1) M10 CONT (PRDB → M10)
M10 drive control signal
[L]: M10 ON
[H]: M10 OFF

(2) M11 DRIVE1, 2 (PRDB → M11)
M11 drive control signal

CLEANING/TONER RECYCLE UNIT

[1] Construction





[2] Mechanism

Mechanisms	Methods
Drum cleaning	Cleaning blade (Fixed type)
Toner recycle	Screw conveyance to the developing unit
Toner collection	Toner collection sheet

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Cleaning Blade

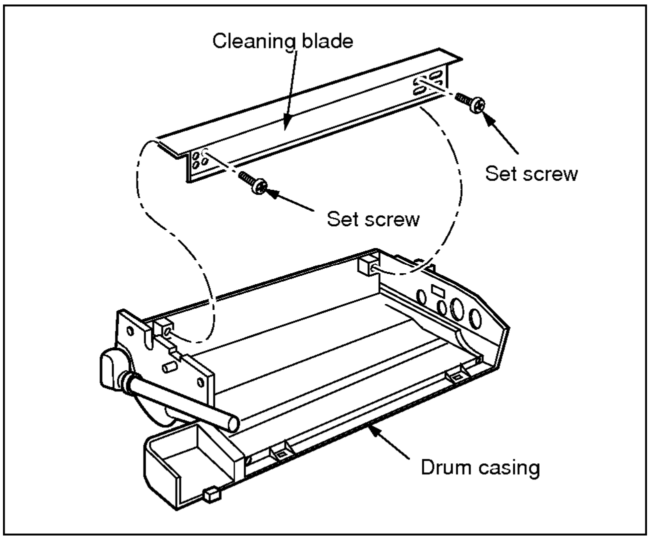
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

Caution:

1. Do not touch the edge of the cleaning blade with bare hands.
2. △3 Push down both ends of the toner collection sheet towards you and confirm that the entire drum is in contact without any space.
3. When installing the drum and cleaning blade, apply setting powder to the entire surface of the drum and also the cleaning blade, regardless of whether the drum and cleaning blade are new or old type parts.
4. Once the drum has been applied with setting powder, carry out the following work before installing the drum unit to the main body.
   - To obtain the correct toner density, clean setting powder leakage on the surface of the sensor on the toner control sensor board with an alcohol damped cloth.

a. Procedure

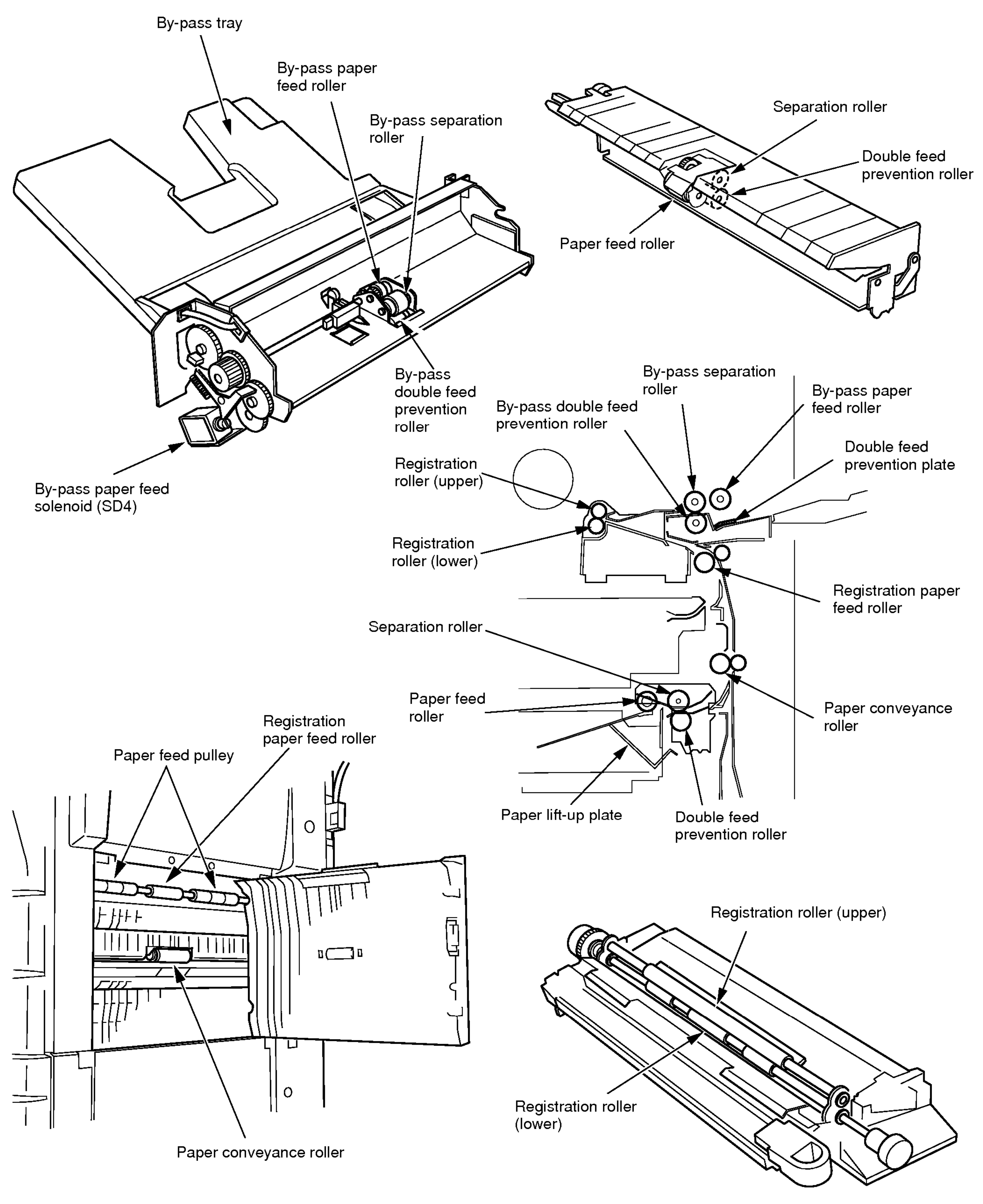
(1) Remove the drum unit from the main body.
(2) Remove the charging corona unit.
(3) Remove the developing unit and drum from the drum casing.
(4) Remove the two set screws, then remove the cleaning blade.


Cleaning blade
Set screw
Set screw
Drum casing

(5) Re-install the cleaning blade in the opposite sequence to removal.

PAPER FEED UNIT

[1] Construction


By-pass tray
By-pass paper feed roller
By-pass separation roller
By-pass double feed prevention roller
By-pass paper feed solenoid (SD4)
Separation roller
Double feed prevention roller
Paper feed roller
By-pass separation roller
By-pass double feed prevention roller
By-pass paper feed roller
Double feed prevention plate
Registration roller (upper)
Registration roller (lower)
Registration paper feed roller
Separation roller
Paper feed roller
Paper conveyance roller
Paper lift-up plate
Double feed prevention roller
Paper feed pulley
Registration paper feed roller
Paper conveyance roller
Registration roller (upper)
Registration roller (lower)

[2] Mechanisms

Mechanisms	Methods
Paper stack	Tray (1-tray)
Paper lift pressure reduction	Paper feed roller
Paper lift-up	Paper lift-up plate
Double feed prevention	Torque limiter
Tray loading	Front loading
1st paper feed	Separation roller, 1st paper feed solenoid
2nd paper feed	Registration roller, registration magnet clutch
Multi tray paper feed	Separation roller, By-pass paper feed solenoid
Paper size detection (universal tray)	Tray detection switch (tact switch)

[3] Disassembly and Re-assembly

1. Removing and Re-installing the By-pass Paper Feed Unit

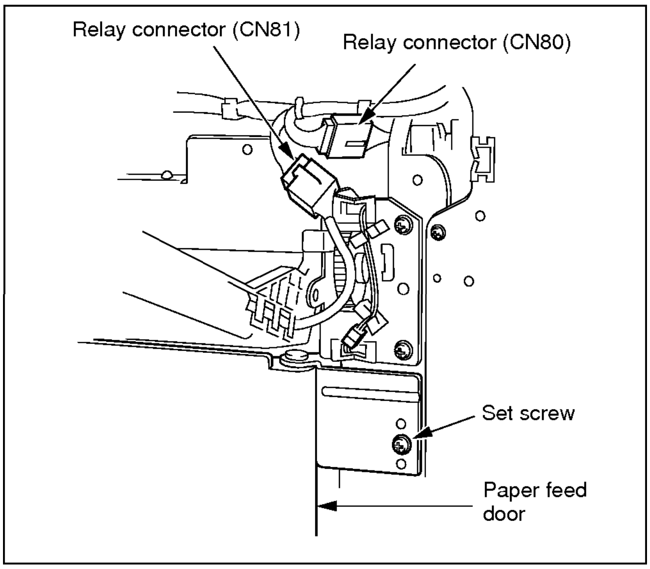
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

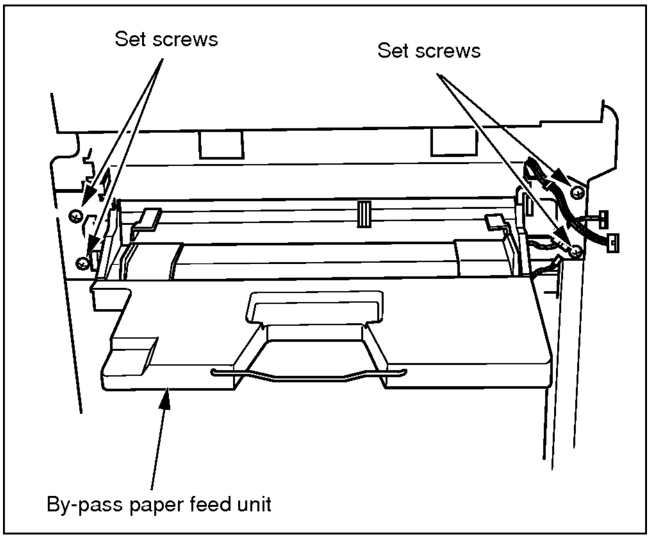
(1) Remove the right side cover.

(2) Remove the two relay connectors (CN80, CN81) of the by-pass paper feed unit.

(3) Remove the one set screw, then remove the paper feed door.


Relay connector (CN81)
Relay connector (CN80)
Set screw
Paper feed door

(4) Remove the four set screws, then remove the by-pass paper feed unit.


Set screws
Set screws
By-pass paper feed unit

(5) Re-install the by-pass paper feed unit in the opposite sequence to removal.

1. Removing and Re-installing the Paper Feed Unit

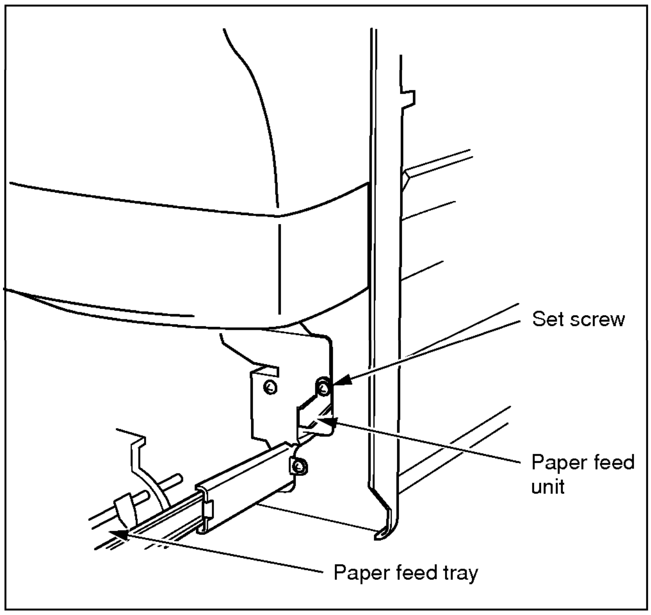
⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Pull out the paper feed tray in the forward direction.

(2) Remove the one set screw, then pull out the paper feed unit with the rail as guide of the paper feed tray toward you.

(3) Re-install the paper feed unit in the opposite sequence to removal.



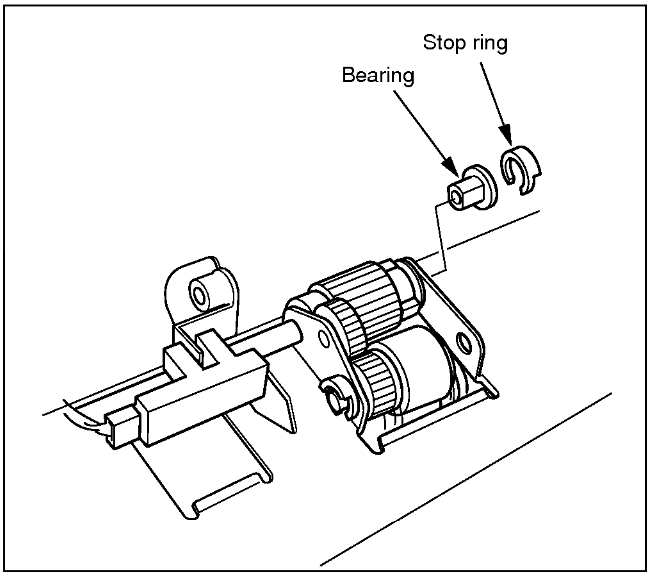
Caution: Be sure to make a copy after installing the paper feed unit and check that paper is fed normally.
If the rocking gear is not held by the 1st paper feed solenoid, the paper feed is not made normally.

3. Replacing the By-pass Paper Feed Rubber

a. Procedure

(1) Remove the by-pass paper feed unit.

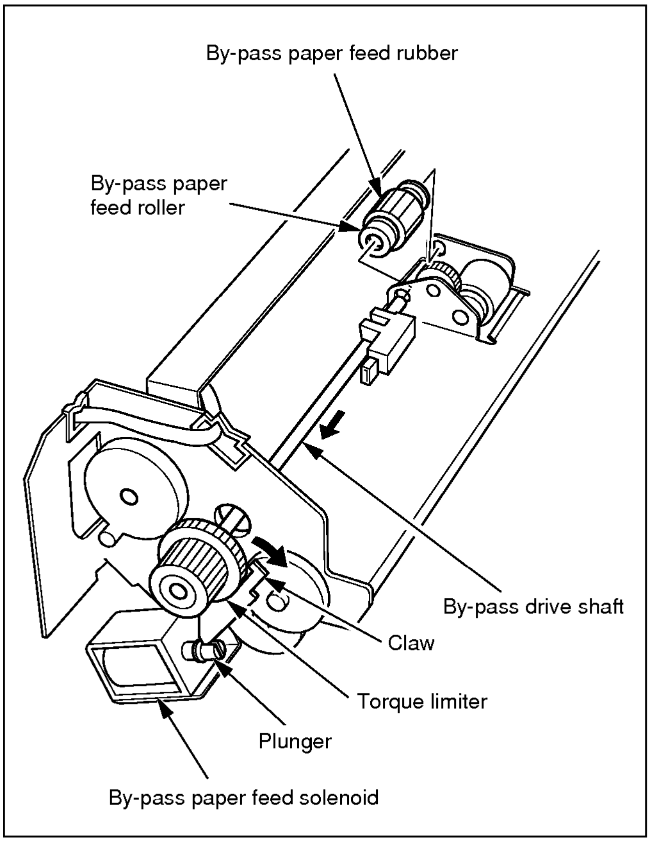
(2) Remove the one stop ring and bearing.



(3) Press the plunger of the by-pass paper feed solenoid until claw of the by-pass paper feed solenoid releases from the gear of the torque limiter.

(4) Pull out the by-pass drive shaft while pressing the plunger of the by-pass paper feed solenoid, then remove the by-pass paper feed roller.

(5) Remove the by-pass paper feed rubber from the by-pass paper feed roller.


By-pass paper feed rubber
By-pass paper feed roller
By-pass drive shaft
Claw
Torque limiter
Plunger
By-pass paper feed solenoid

(6) Re-install the by-pass paper feed rubber in the opposite sequence to removal.

5. Replacing the By-pass Separation Rubber

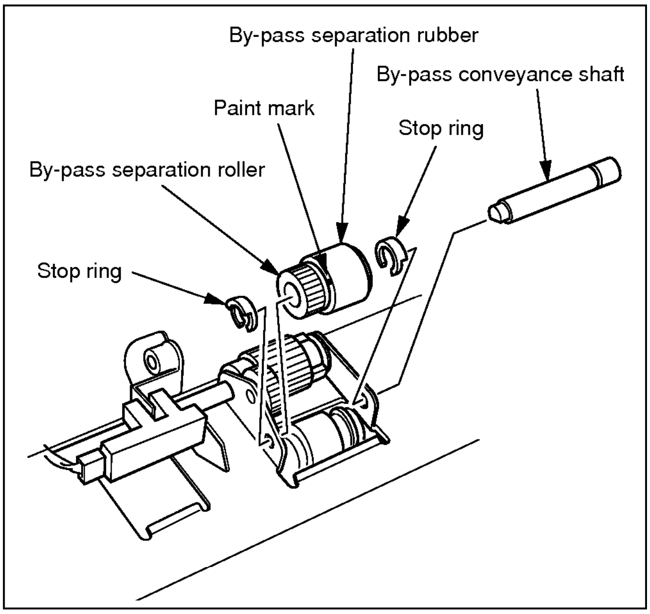
a. Procedure

(1) Remove the by-pass paper feed unit.

(2) Remove the two stop rings.

(3) Pull out the by-pass conveyance shaft, then remove the by-pass separation roller.

(4) Remove the by-pass separation rubber from the by-pass separation roller.


By-pass separation rubber
By-pass conveyance shaft
Paint mark
Stop ring
By-pass separation roller
Stop ring

(5) Re-install the by-pass separation rubber in the opposite sequence to removal.

Caution: Check that the mounting orientation of the by-pass separation rubber is correct.

5. Replacing the By-pass Double Feed Prevention Rubber

a. Procedure

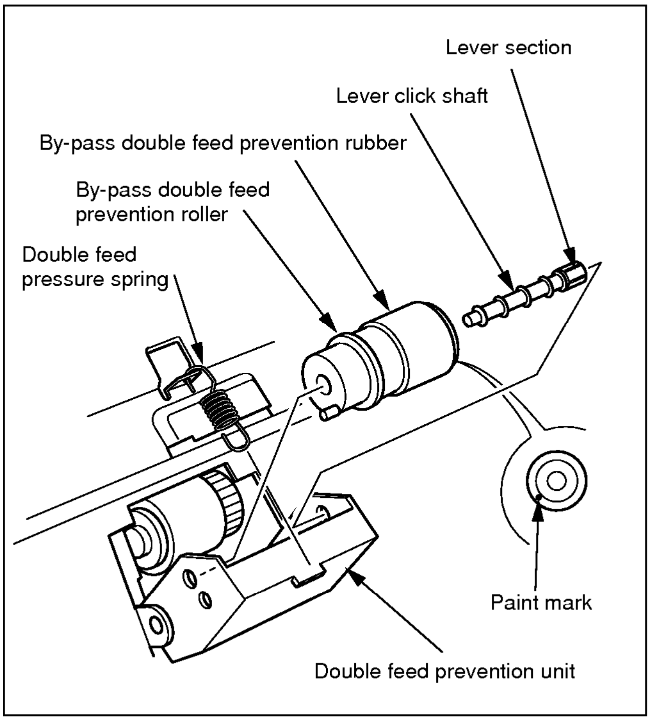
(1) Remove the by-pass paper feed unit.

(2) Remove the double feed pressure spring from the double feed prevention unit, then open the double feed prevention unit.

(3) While pressing the lever section of the lever click shaft, then pull out the lever click shaft.

(4) Remove the by-pass double feed prevention roller.

(5) Remove the by-pass double feed prevention rubber from the by-pass double feed prevention roller.


Lever section
Lever click shaft
By-pass double feed prevention rubber
By-pass double feed prevention roller
Double feed pressure spring
Paint mark
Double feed prevention unit

(6) Re-install the by-pass double feed prevention rubber in the opposite sequence to removal.

Caution: Check that the mounting orientation of the by-pass double feed prevention rubber is correct.

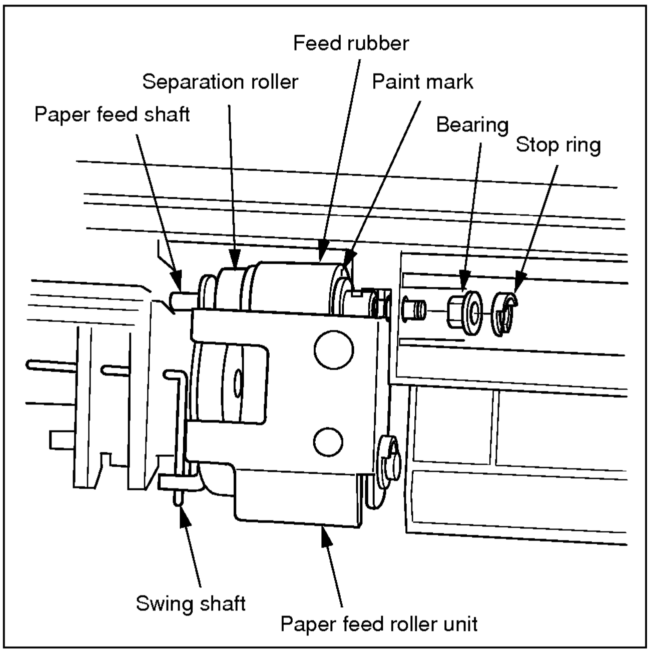
6. Replacing the Feed Rubber and Paper Feed Rubber

a. Procedure

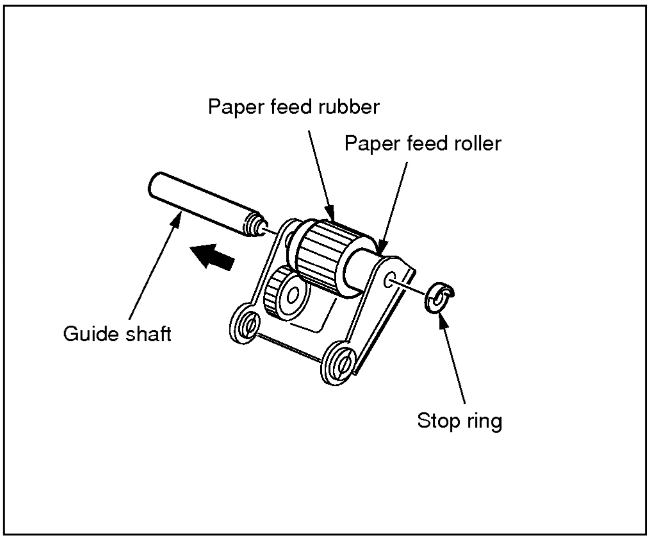
(1) Remove the paper feed unit.

(2) Remove the one stop ring and bearing.

(3) While pulling out the paper feed shaft, remove the separation roller from the paper feed roller unit.


Feed rubber
Separation roller
Paint mark
Paper feed shaft
Bearing
Stop ring
Swing shaft
Paper feed roller unit

(4) Remove the stop ring, then pull out the guide shaft in the direction of the arrow and remove the paper feed roller.


Paper feed rubber
Paper feed roller
Guide shaft
Stop ring

(5) Remove the feed rubber from the separation roller.
(6) Remove the paper feed rubber from the paper feed roller.
(7) Re-install the above parts in the opposite sequence to removal.

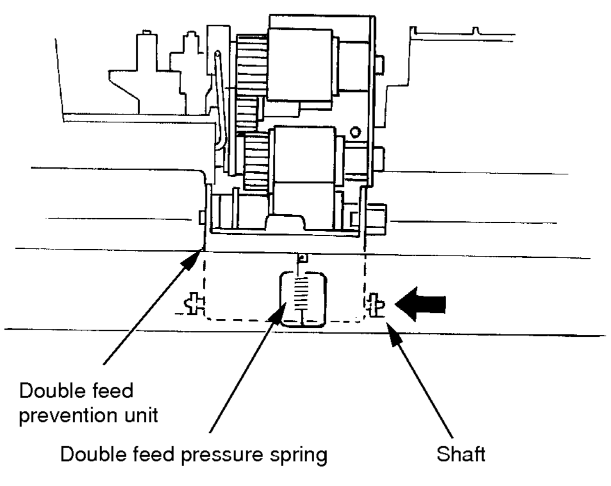
Caution:

a. Check that the mounting orientation of each roller rubber is correct.
b. Install each roller rubber so that the rocking shaft gets under the paper feed roller unit.

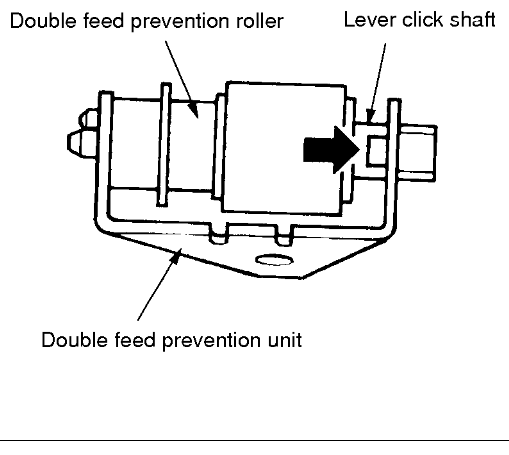
7. Removing and Re-installing the Double Feed Prevention Roller

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the double feed pressure spring from the double feed prevention unit.
(3) While pressing the shaft, then remove the double feed prevention unit from the paper feed unit.


Double feed prevention unit
Double feed pressure spring
Shaft

(4) While pressing the lever section of the lever click shaft, then pull out the lever click shaft and remove the double feed prevention roller.


Double feed prevention roller
Lever click shaft
Double feed prevention unit

(5) Re-install the double feed prevention roller in the opposite sequence to removal.

Caution: After reinstallation, check that the double feed pressure spring smootly moves the double feed prevention roller.

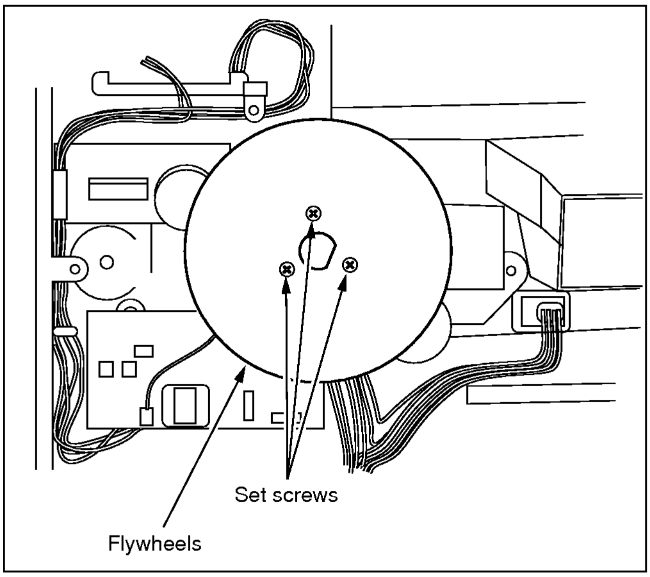
8. Removing and Re-installing the 2nd Paper Feed Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

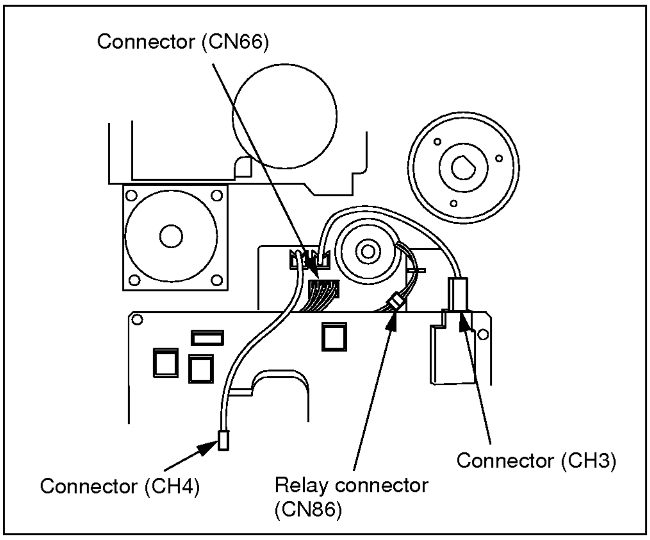
a. Removal procedure

(1) Remove the rear cover.

(2) Remove the three set screws, then remove the two flywheels.


Set screws
Flywheels

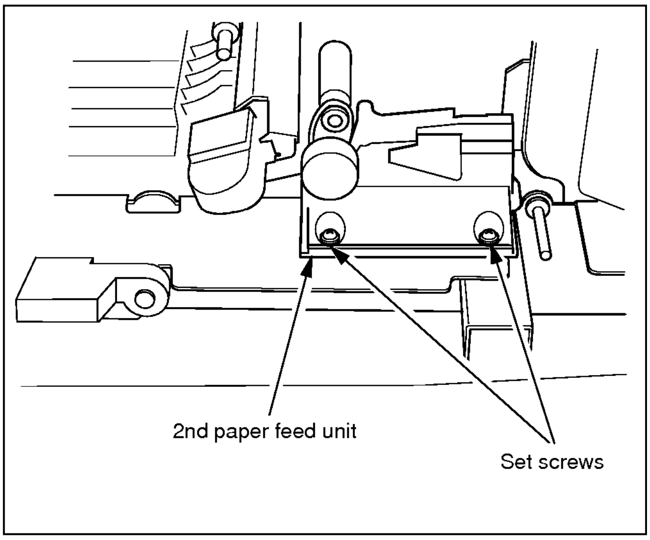
(3) Disconnect the three connectors (CN66, CH3, CH4) on the rear of the 2nd paper feed unit and relay connector (CN86).


Connector (CN66)
Connector (CH4)
Relay connector (CN86)
Connector (CH3)

(4) Remove the by-pass paper feed unit from the main body.

(5) Remove the drum unit from the main body.

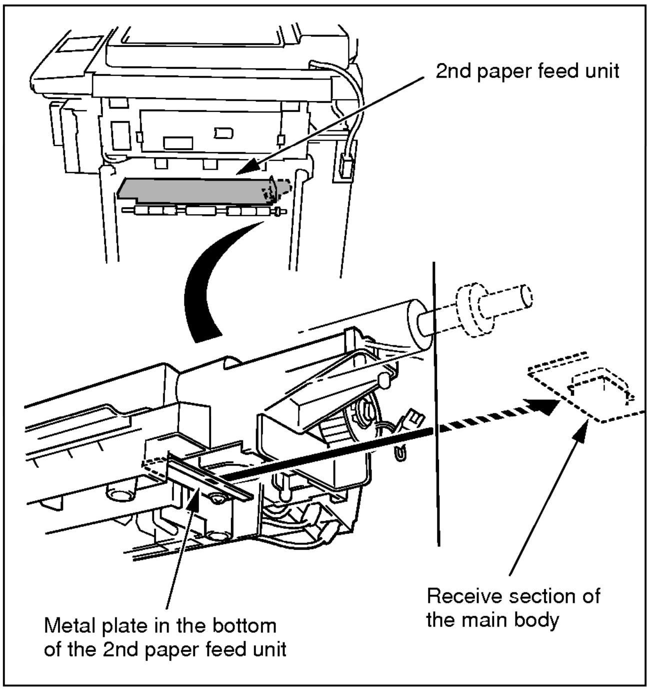
(6) Remove the two set screws, then remove the 2nd paper feed unit.


2nd paper feed unit
Set screws

b. Re-installation procedure

(1) Insert the 2nd paper feed unit into the inside of the main body.

(2) Install the 2nd paper feed unit so that the metal plate in the bottom of the 2nd paper feed unit gets under the receive section of the main body.


2nd paper feed unit
Metal plate in the bottom of the 2nd paper feed unit
Receive section of the main body

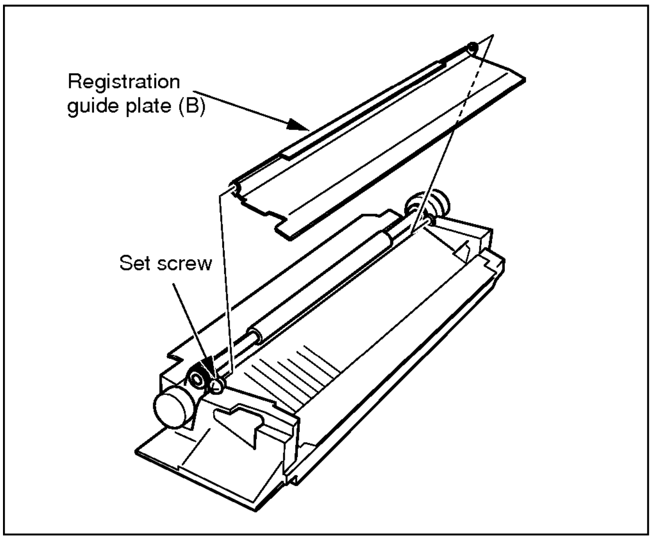
(3) The reminder of the installation procedure is in the opposite sequence to removal.

9. Replacing the Registration Rollers (upper/ lower)

a. Procedure

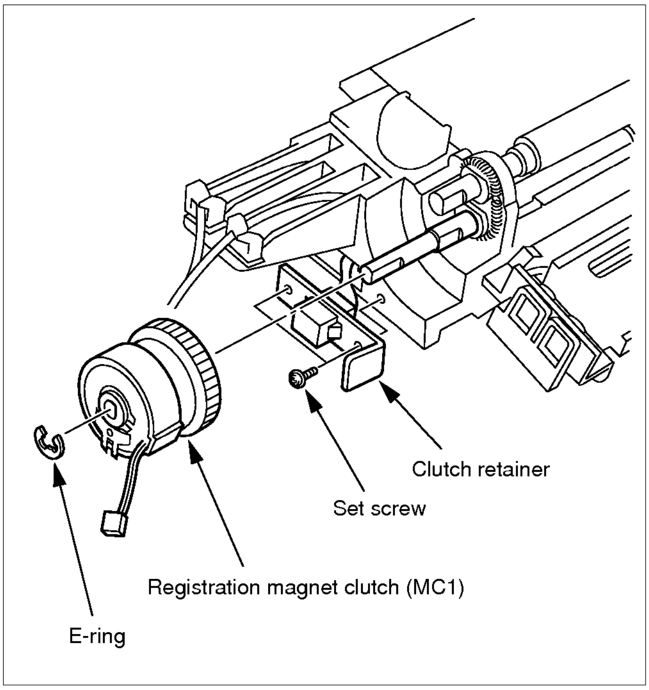
(1) Remove the 2nd paper feed unit.

(2) Loosen the one set screw, then remove the registration guide plate (B).

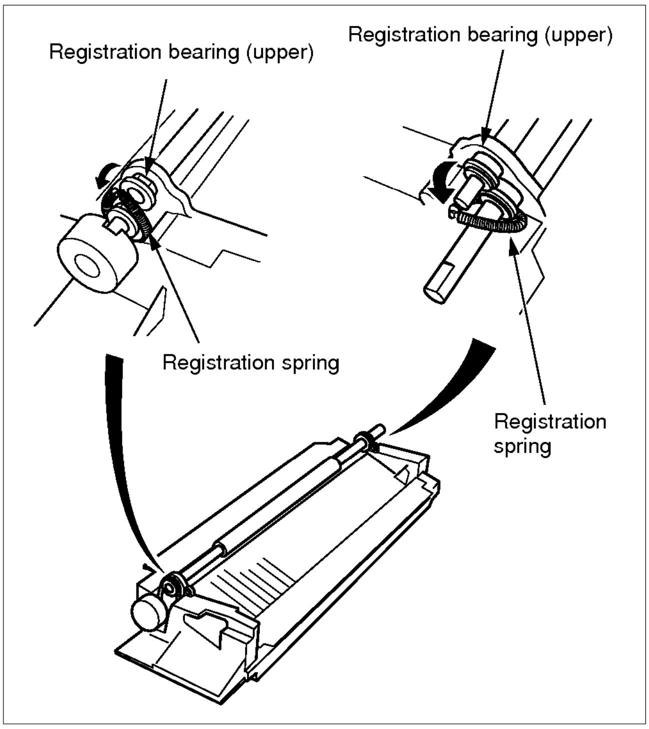

Registration guide plate (B)
Set screw

(3) Remove the one set screw, then remove the clutch retainer.

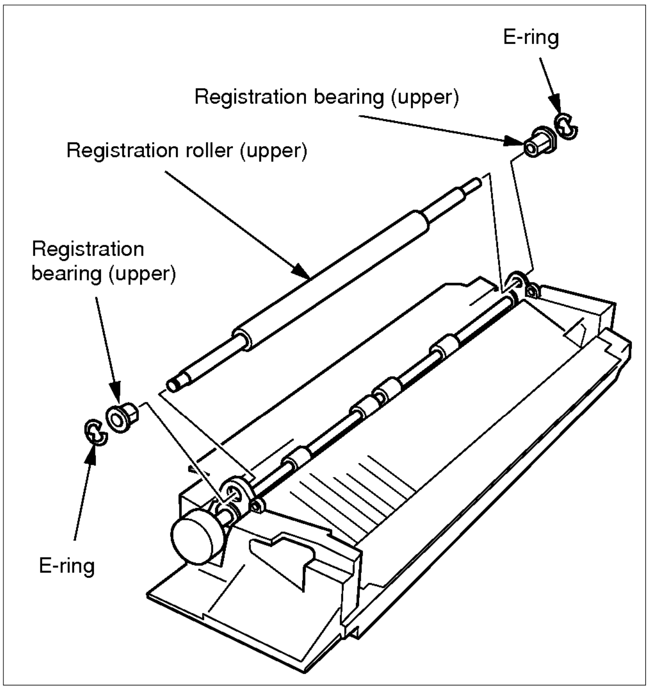
(4) Remove the one E-ring, then remove the registration magnet clutch (MC1).


Clutch retainer
Set screw
Registration magnet clutch (MC1)
E-ring

(5) Pull up the registration springs (front and rear) and expand its, then remove the registration springs from the flange of each registration bearing (upper).

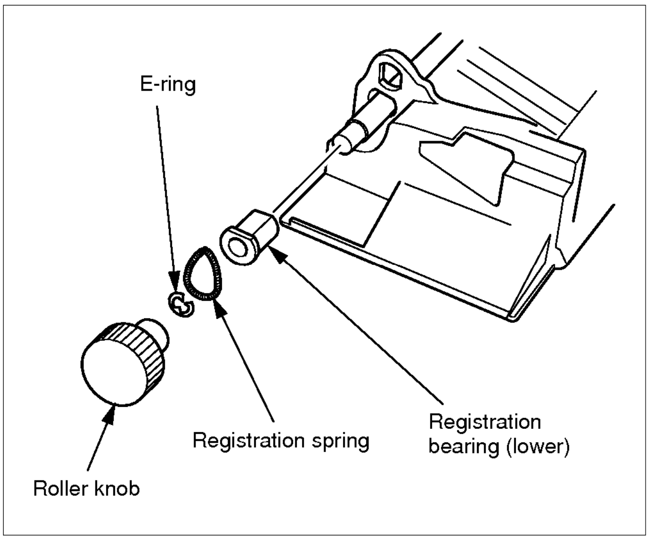

Registration bearing (upper)
Registration bearing (upper)
Registration spring
Registration spring

(6) Remove the two E-rings and registration bearings (upper), then remove the registration roller (upper).


E-ring
Registration bearing (upper)
Registration roller (upper)
Registration bearing (upper)
E-ring

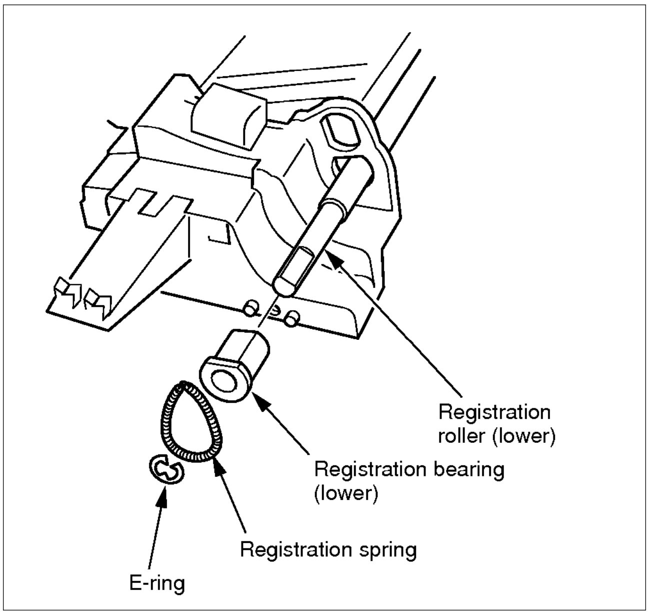
(7) Remove the roller knob.

(8) Remove the one E-ring, then remove the registration bearing (lower) (rear side) and registration spring.


E-ring
Registration spring
Registration bearing (lower)
Roller knob

(9) Remove the one E-ring, then remove the registration bearing (lower) (front side) and registration spring.

(10) Remove the registration roller (lower) from the 2nd paper feed unit.

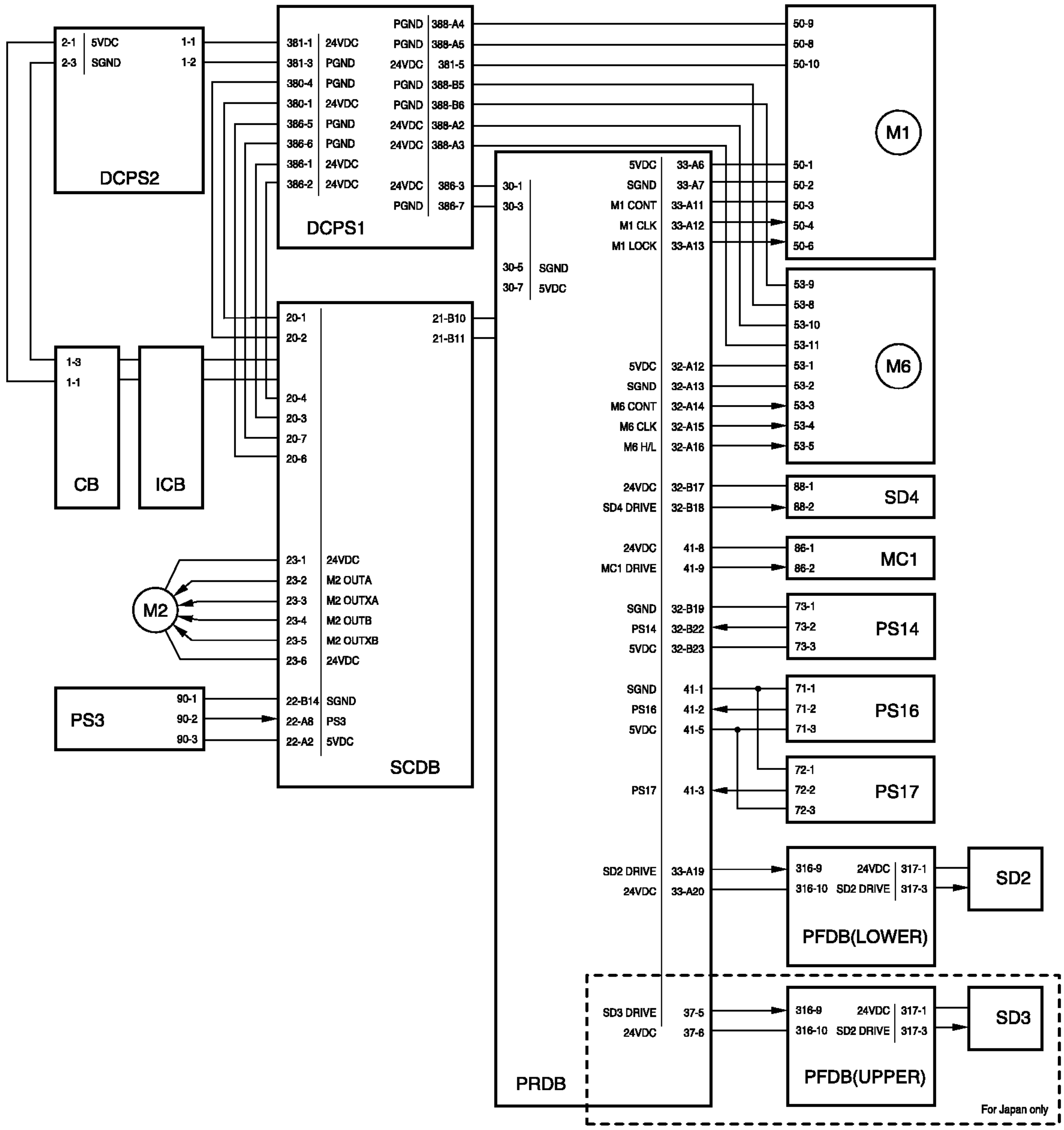

Registration roller (lower)
Registration bearing (lower)
Registration spring
E-ring

(11) Re-install the registration rollers (upper/lower) in the opposite sequence to removal.

Caution:

1. When installing the registration bearing (lower), flange section is directed downwards.
2. Removing and re-installing the registration spring with hooked the both ends of the spring.
3. When installing the registration spring, the hook section is between the registration bearing (upper) and registration bearing (lower).
4. When installing the registration magnet clutch, insert the clutch retainer into the groove of the stopper section.

[4] Paper Feed Control


2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
24VDC
381-3
PGND
380-4
PGND
380-1
24VDC
386-5
PGND
386-6
PGND
386-1
24VDC
386-2
24VDC
PGND
388-A4
PGND
388-A5
24VDC
381-5
PGND
388-B5
PGND
388-B6
24VDC
388-A2
24VDC
388-A3
24VDC
386-3
PGND
386-7
DCPS1
50-9
50-8
50-10
M1
50-1
50-2
50-3
50-4
50-6
53-9
53-8
53-10
53-11
M6
53-1
53-2
53-3
53-4
53-5
30-1
30-3
30-5
SGND
30-7
5VDC
5VDC
33-A6
SGND
33-A7
M1 CONT
33-A11
M1 CLK
33-A12
M1 LOCK
33-A13
5VDC
32-A12
SGND
32-A13
M6 CONT
32-A14
M6 CLK
32-A15
M6 H/L
32-A16
24VDC
32-B17
SD4 DRIVE
32-B18
88-1
88-2
SD4
24VDC
41-8
MC1 DRIVE
41-9
86-1
86-2
MC1
SGND
32-B19
PS14
32-B22
5VDC
32-B23
73-1
73-2
73-3
PS14
SGND
41-1
PS16
41-2
5VDC
41-5
71-1
71-2
71-3
PS16
PS17
41-3
72-1
72-2
72-3
PS17
SD2 DRIVE
33-A19
24VDC
33-A20
316-9
24VDC
317-1
316-10
SD2 DRIVE
317-3
SD2
PFDB(LOWER)
SD3 DRIVE
37-5
24VDC
37-6
316-9
24VDC
317-1
316-10
SD2 DRIVE
317-3
SD3
PFDB(UPPER)
PRDB
For Japan only
20-1
20-2
21-B10
21-B11
1-3
1-1
CB
ICB
20-4
20-3
20-7
20-6
23-1
24VDC
23-2
M2 OUTA
23-3
M2 OUTXA
23-4
M2 OUTB
23-5
M2 OUTXB
23-6
24VDC
M2
PS3
90-1
90-2
90-3
22-B14
SGND
22-A8
PS3
22-A2
5VDC
SCDB

The 1st paper feed takes place as a result of the transmission of drive force from M6 (1st paper feed) via SD2 (1st paper feed (lower)) and SD4 (by-pass paper feed) to the respective paper feed roller and separation roller. At this time, each paper feed roller is not contact with the paper, hence the paper feed roller and the by-pass plate are moved up and down by SD2 (1st paper feed (lower) and SD4 (by-pass paper feed), causing each roller to contact with the paper. Control of each roller is carried out by the PRDB (printer drive board). The 2nd paper feed is carried out by MC1 (registration). Related signals are PS3 (optics home position), PS14 (open/close detect), PS16 (registration) and PS17 (no feed).

1. Operation

a. 1st paper feed operation timing (by-pass)

(1) 1st copy start
After the specified time from when the Start button is pressed

(2) 2nd copy start
After the specified time from when SD4 goes ON for the 1st copy

(3) OFF timing
After the specified time from when SD4 goes ON

b. 1st paper feed operation timing (tray)

(1) 1st copy start
After the specified time from when the Start button is pressed

(2) 2nd copy start
After the specified time from when SD2 goes ON for the 1st copy

(3) OFF timing
After the specified time from when SD2 goes ON

c. 2nd paper feed control (MC1)

(1) ON timing
After the specified time from when V-Valid signal goes ON

(2) OFF timing
After the specified time from when MC1 goes ON

2. Signals

a. Input signals

(1) M1 LD (M1 → PRDB)
M1 rotational status detection signal
This signal becomes [L] when M1 reaches the set speed.

(2) PS3 (PS3 → SCDB → ICB)
Exposure unit home position detection signal
[L]: Exposure unit is in the home position
[H]: Exposure unit is not in the home position

(3) PS14 (PS14 → PRDB)
Paper feed door open/close detection signal
[L]: Door is closed
[H]: Door is open

(4) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

(5) PS17 (PS17 → PRDB)
Paper detection signal used for detecting the paper at before registration section.
[L]: Paper is not detected
[H]: Paper is detected

b. Output signals

(1) M1 CONT (PRDB → M1)
M1 drive control signal
[L]: M1 ON
[H]: M1 OFF

(2) M1 CLK (PRDB → M1)
Reference clock signal for controlling the speed of M1

(3) M6 CONT (PRDB → M6)
M6 drive control signal
[L]: M6 ON
[H]: M6 OFF

(4) M6 H/L (PRDB → M6)
M6 rotational speed switching signal
[L]: High speed
[H]: Low speed

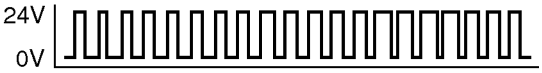
(5) M6 CLK (PRDB → M6)
Reference clock signal for controlling the speed of M6

(6) SD4 DRIVE (PRDB → SD4)
SD4 drive control signal
[L]: SD4 ON
[H]: SD4 OFF

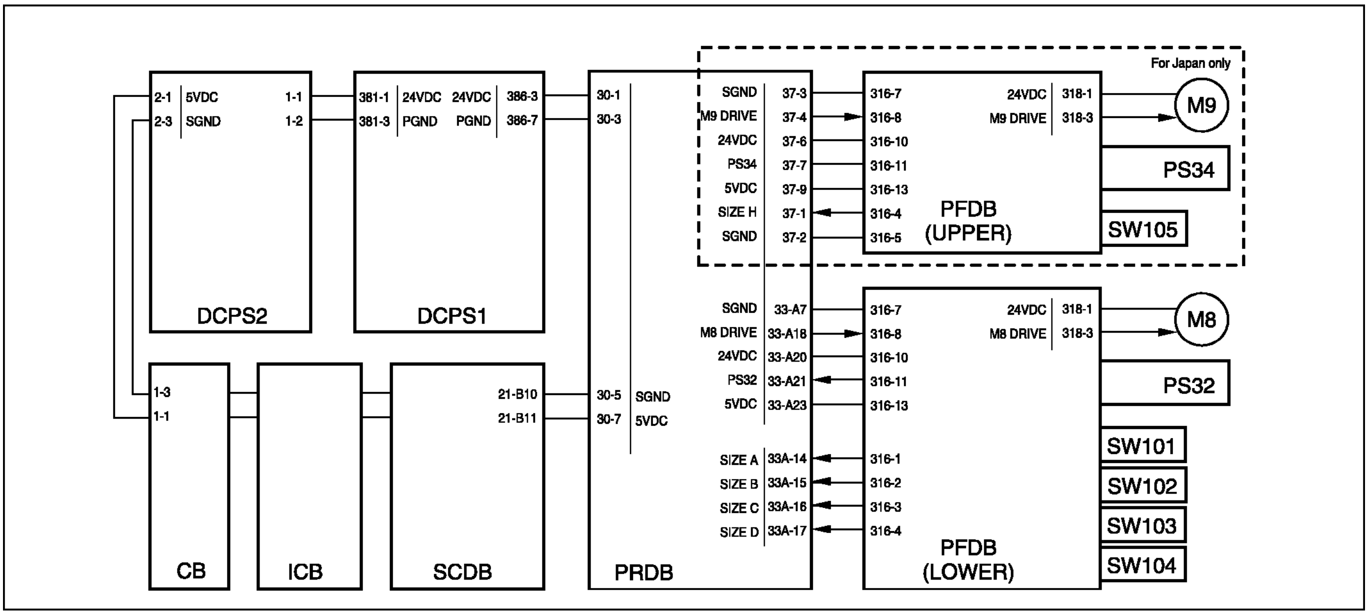
(7) MC1 DRIVE (PRDB → MC1)
MC1 drive control signal
[L]: MC1 ON
[H]: MC1 OFF

(8) SD2 DRIVE (PRDB → PFDB(LOWER) → SD2)
SD2 drive control signal
[L]: SD2 ON
[H]: SD2 OFF

(9) M2 OUTA, OUTXA, OUTB, OUTXB (SCDB → M2)
M2 ON/OFF drive signal



[5] Paper Up-down Control


For Japan only
DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 24VDC 24VDC 386-3
381-3 PGND PGND 386-7
PRDB
30-1
30-3
30-5 SGND
30-7 5VDC
SGND 37-3
M9 DRIVE 37-4
24VDC 37-6
PS34 37-7
5VDC 37-9
SIZE H 37-1
SGND 37-2
SGND 33-A7
M8 DRIVE 33-A18
24VDC 33-A20
PS32 33-A21
5VDC 33-A23
SIZE A 33A-14
SIZE B 33A-15
SIZE C 33A-16
SIZE D 33A-17
PFDB (UPPER)
316-7
316-8
316-10
316-11
316-13
316-4
316-5
24VDC 318-1
M9 DRIVE 318-3
M9
PS34
SW105
PFDB (LOWER)
316-7
316-8
316-10
316-11
316-13
316-1
316-2
316-3
316-4
24VDC 318-1
M8 DRIVE 318-3
M8
PS32
SW101
SW102
SW103
SW104
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11

When a paper feed tray is loaded, M8 (tray (lower)) goes ON for a certain period, raising the bottom plate in the tray. Related signal is PS32 (upper limit detect (lower)).

1. Operation

a. ON timing

M8 is turned ON by the paper size detect switches (SW101 to 104) going ON.

b. OFF timing

M8 is turned OFF by PS32 going ON.

2. Signals

a. Input signal

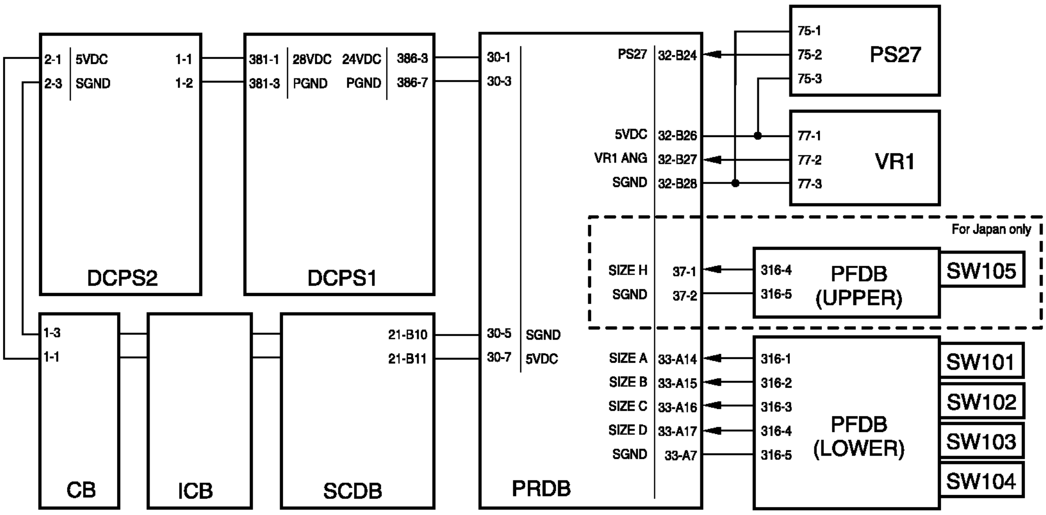
(1) PS32 (PS32 → PFDB (LOWER) → PRDB)
Tray upper limit detection signal
The paper in the tray is raised by M8, and when it reaches the upper limit position this signal becomes [H].

(2) SIZE A to D (SW101 to 104 → PFDB(LOWER) → PRDB)
Paper size detection switch ON/OFF signal

b. Output signal

(1) M8 DRIVE (PRDB → PFDB (LOWER) → M8)
M8 drive control signal
[L]: M8 ON
[H]: M8 OFF

[6] Paper Size Detection Control


2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
28VDC
24VDC
386-3
381-3
PGND
PGND
386-7
DCPS1
30-1
30-3
PS27
32-B24
5VDC
32-B26
VR1 ANG
32-B27
SGND
32-B28
75-1
75-2
75-3
PS27
77-1
77-2
77-3
VR1
For Japan only
SIZE H
37-1
SGND
37-2
316-4
316-5
PFDB
(UPPER)
SW105
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB
30-5
SGND
30-7
5VDC
SIZE A
33-A14
SIZE B
33-A15
SIZE C
33-A16
SIZE D
33-A17
SGND
33-A7
PRDB
316-1
316-2
316-3
316-4
316-5
PFDB
(LOWER)
SW101
SW102
SW103
SW104

The size of the paper in the lower tray is detected as a result of the matrix circuit in the PRDB (printer drive board) detecting the signal from the paper feed detection board. The size of paper in the by-pass tray is detected by the PRDB according to the combination of PS27 (by-pass tray paper size detect (length)) and VR1 (by-pass tray paper size (width)).

1. Operation

a. Tray (lower) paper size detection

The paper feed detection board has four switches which detect the position of the paper size detect actuators in the tray (lower). The paper size is detected according to the particular ON-OFF combination of these switches.

The relation between the state of the switches on the paper feed detection board and the paper size is shown below.

Paper size	SW101	SW102	SW103	SW104
A3	OFF	OFF	OFF	ON
B4	ON	OFF	OFF	ON
A4	ON	ON	ON	ON
B5	ON	OFF	ON	ON
A4R	OFF	ON	ON	OFF
B5R	ON	ON	OFF	OFF
A5R	ON	ON	ON	OFF
8.5 x 11R	ON	OFF	ON	OFF

b. By-pass tray paper size detection

The size in the lengthwise direction of the paper in the by-pass tray is detected by the ON/OFF state of PS27, and the size in the widthwise direction is detected by the resistance of VR1 which varies according to the position of the guide on the by-pass tray.

2. Signals

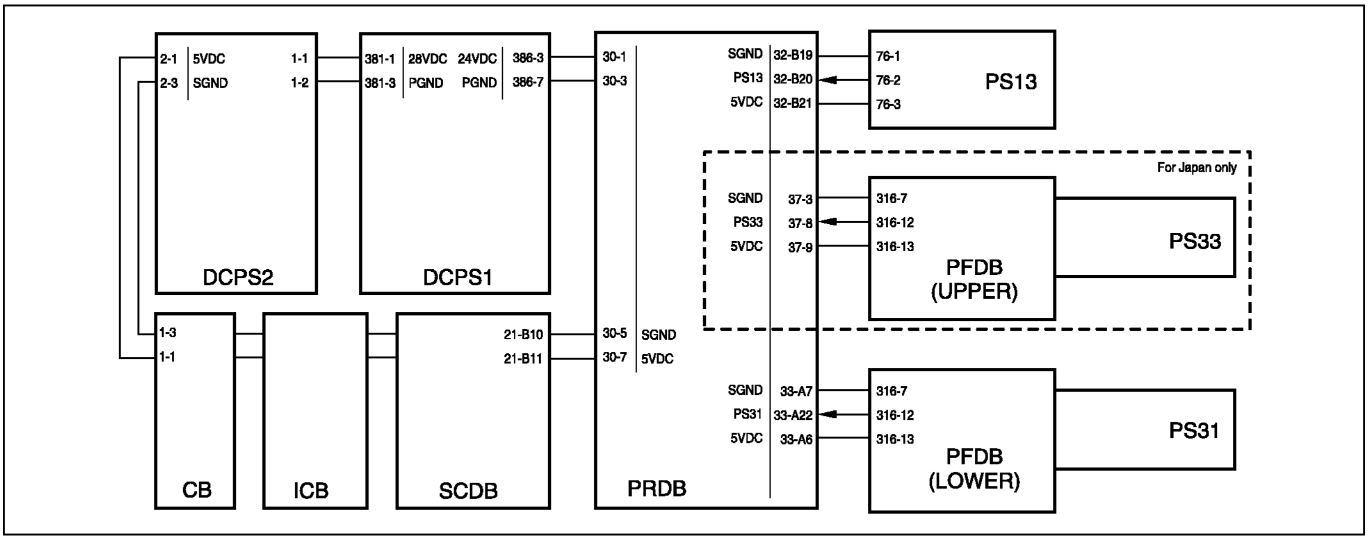
a. Input signals

(1) SIZE A to D (SW101 to 104 → PFDB(LOWER) → PRDB)
Paper size detection switch ON/OFF signal

(2) PS27 (PS27 → PRDB)
By-pass tray lengthwise direction paper size detection signal
[L]: B4 size or larger
[H]: A4R size or less

(3) VR1 ANG (VR1 → PRDB)
By-pass tray widthwise direction paper size detection signal

[7] No Paper Detection Control


2-1
2-3
5VDC
SGND
1-1
1-2
DCPS2
381-1
381-3
28VDC
PGND
24VDC
PGND
386-3
386-7
DCPS1
30-1
30-3
SGND
PS13
5VDC
32-B19
32-B20
32-B21
76-1
76-2
76-3
PS13
For Japan only
SGND
PS33
5VDC
37-3
37-8
37-9
316-7
316-12
316-13
PFDB
(UPPER)
PS33
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB
30-5
30-7
SGND
5VDC
SGND
PS31
5VDC
33-A7
33-A22
33-A6
316-7
316-12
316-13
PFDB
(LOWER)
PS31
PRDB

No paper detection takes place by PS31 (no paper detect (lower)) and PS13 (by-pass no paper detect) which are controlled by the PRDB (printer drive board).

1. Operation

a. No paper detection control

When a paper feed tray or the by-pass tray becomes empty, PS31 or PS13 goes ON. As a result, a message is displayed on the DISPLAY BOARD via the OB1 (operation board 1).

2. Signals

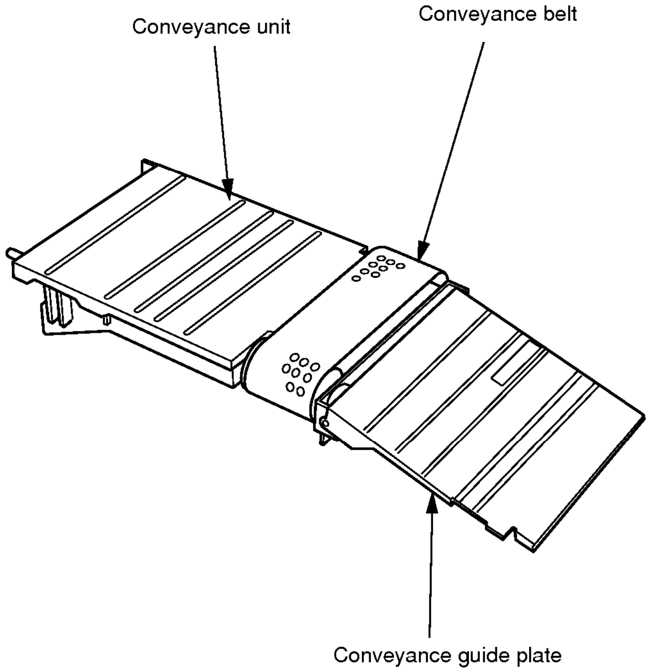
a. Input signals

(1) PS31 (PS31 → PFDB(LOWER) → PRDB)
Lower tray no paper detection signal
[H]: Paper in tray
[L]: No paper in tray

(2) PS13 (PS13 → PRDB)
By-pass tray no paper detection signal
[L]: No paper in tray
[H]: Paper in tray

CONVEYANCE SECTION

[1] Construction


Conveyance unit
Conveyance belt
Conveyance guide plate

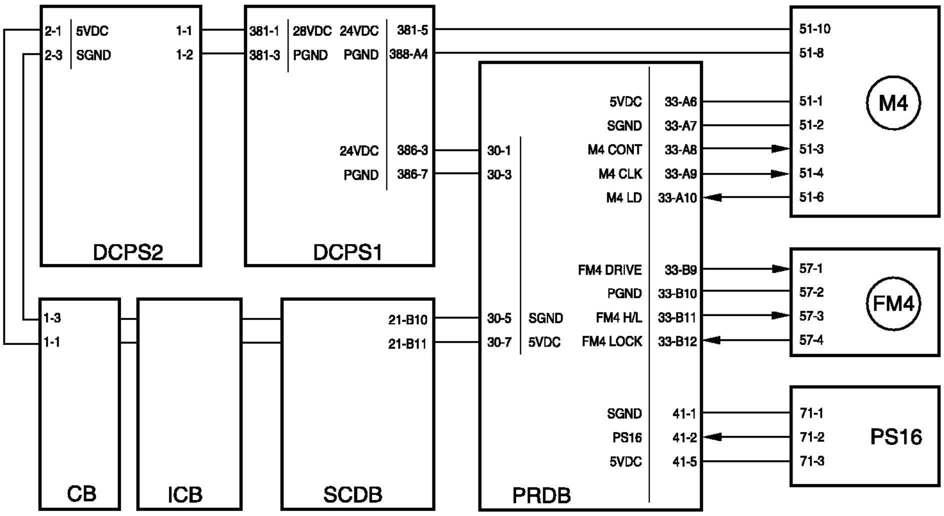
[2] Mechanism

Mechanisms	Method
Paper conveyance	One conveyance belt

[3] Disassembly and Re-assembly

Disassembly and re-assembly is not made in the normal service.

[4] FM4 (conveyance suction) Control


2-1
5VDC
1-1
2-3
SGND
1-2
DCPS2
381-1
28VDC
24VDC
381-5
381-3
PGND
PGND
388-A4
24VDC
386-3
PGND
386-7
DCPS1
30-1
30-3
5VDC
33-A6
SGND
33-A7
M4 CONT
33-A8
M4 CLK
33-A9
M4 LD
33-A10
FM4 DRIVE
33-B9
PGND
33-B10
30-5
SGND
FM4 H/L
33-B11
30-7
5VDC
FM4 LOCK
33-B12
SGND
41-1
PS16
41-2
5VDC
41-5
PRDB
51-10
51-8
51-1
51-2
51-3
51-4
51-6
M4
57-1
57-2
57-3
57-4
FM4
71-1
71-2
71-3
PS16
1-3
1-1
CB
ICB
21-B10
21-B11
SCDB

FM4 (conveyance suction) drives the PRDB (printer drive board).

1. Operation

FM4 is a 24 V drive DC motor. It goes ON in synchronism with M4 (drum), and it goes

OFF again after the specified time from PS16 (registration) going OFF.

2. Signals

a. Input signals

(1) M4 LD (M4 → PRDB)
M4 rotational status detection signal
This signal becomes [L] when M4 reaches the set speed.

(2) PS16 (PS16 → PRDB)
Paper detection signal used for detecting the paper feed temporary stop position.
PS16 goes ON and outputs [H] when paper is detected at the paper feed temporary stop position.

(3) FM4 LOCK (FM4 → PRDB)
FM4 rotation abnormality detect signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

b. Output signals

(1) FM4 DRIVE (PRDB → FM4)
FM4 drive control signal
[L]: FM4 OFF
[H]: FM4 ON

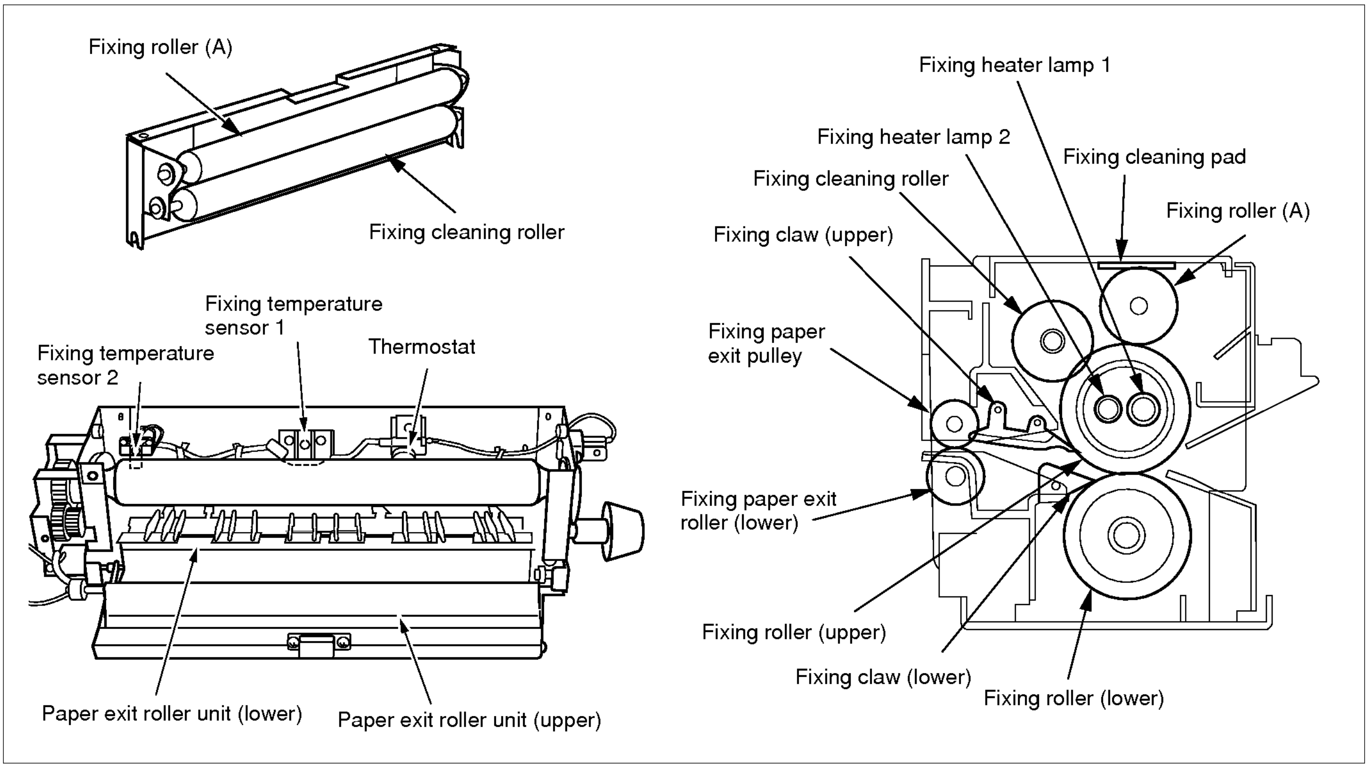
(2) FM4 H/L (PRDB → FM4)
FM4 rotational speed switching signal
[L]: High speed
[H]: Low speed

(3) M4 CONT (PRDB → M4)
M4 drive control signal
[L]: M4 ON
[H]: M4 OFF

(4) M4 CLK (PRCB → M4)
Reference clock signal for controlling the speed of M4

FIXING UNIT

[1] Construction

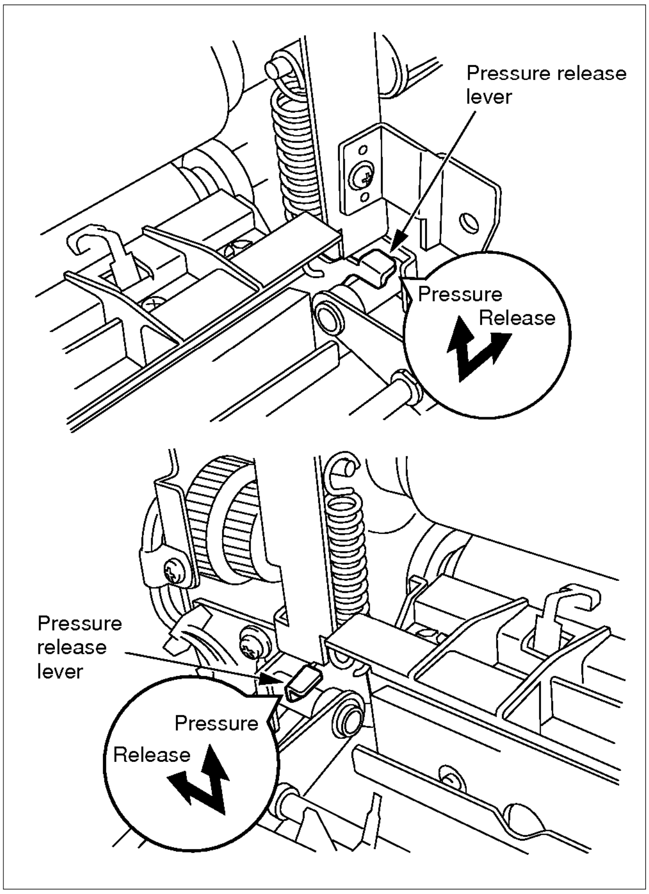

Fixing roller (A)
Fixing cleaning roller
Fixing temperature sensor 1
Thermostat
Fixing temperature sensor 2
Paper exit roller unit (lower)
Paper exit roller unit (upper)
Fixing heater lamp 1
Fixing heater lamp 2
Fixing cleaning pad
Fixing cleaning roller
Fixing roller (A)
Fixing claw (upper)
Fixing paper exit pulley
Fixing paper exit roller (lower)
Fixing roller (upper)
Fixing claw (lower)
Fixing roller (lower)

[2] Mechanism

Mechanisms	Methods
Fixing	Pressure + heat roller
Heat source	Heater lamp (Two upper lamp)
Cleaning	Fixing cleaning roller, Fixing cleaning pad
Oil apply	Fixing roller (A) (silicone oil)
Upper roller	Aluminium + PFA coating
Lower roller	Silicone rubber + PFA tube
Separation	Separation claws (4 upper and 4 lower claws)
Temperature detection	Upper roller * Non-contact type thermistor (for control) * Contact type thermistor (for abnormality detection)
Overheating prevention	Non-contact type thermostat (upper roller)
Neutralizing	Neutralizing brush

***1: Pressure release mechanism of the fixing roller (lower)**

The pressure release of the fixing roller (lower) is carried out by fixing and releasing the two rear and front pressure release lever.


Pressure release lever
Pressure
Release
Pressure release lever
Pressure
Release

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Fixing Unit

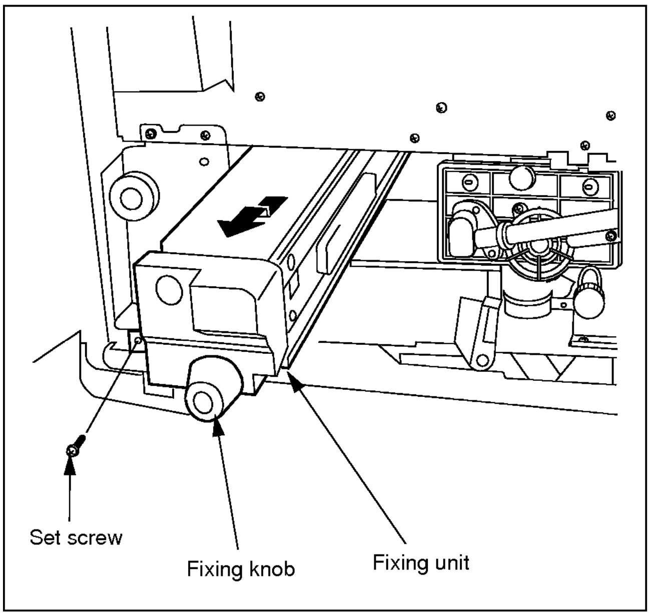
⚠**Caution:**

1. **Be sure that the power cord has been unplugged from the power outlet.**
2. **Do not touch the fixing unit immediately after turning OFF the power switch because it is very hot and you may receive a burn. Wait until the fixing unit has cooled down sufficiently before working on it.**

a. Procedure

(1) Open the front door, then remove the one set screw holding the fixing unit.

(2) If it will not pull out in the horizontal direction, lift it up a little while pulling it out.



(3) Re-install the fixing unit in the opposite sequence to removal.

2. Replacing the Fixing Heater Lamps 1 and 2

⚠**Caution: Do not touch the fixing heater lamp with the bare hands.**

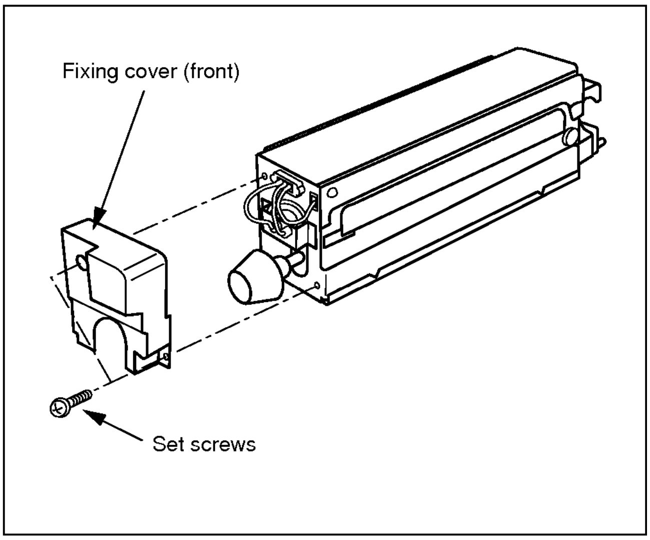
Caution:

1. Install the fixing heater lamp with the manufacture mark facing the drive gear side.
2. Avoid touching the inside of roller with the fixing heater lamp .
3. Install the fixing heater lamp so that small rated power consumption is in the paper exit side and large is paper feed side.
4. Be careful of the installation orientation of the faston terminal at the rear side.

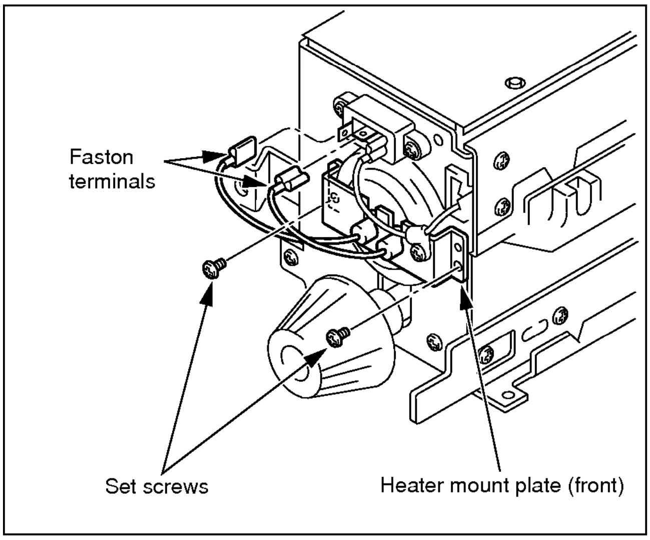
a. Procedure

(1) Remove the fixing unit from the main body.

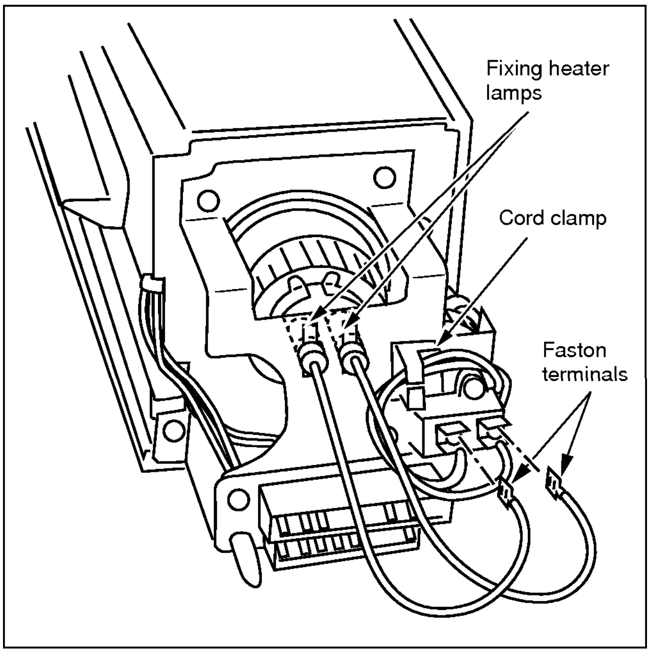
(2) Remove the two set screws, then remove the fixing cover (front).



(3) Disconnect the faston terminal at the front side of each fixing heater lamp.
(4) Remove the two set screws, then remove the heater mount plate (front).


Faston terminals
Set screws
Heater mount plate (front)

(5) Free the two wires from the cord clamp at the rear of the fixing heater lamp.
(6) Disconnect the faston terminal at the rear side of each fixing heater lamp.
(7) Stretch the wire of the faston terminal at the rear side and pull out each fixing heater lamp towards you.


Fixing heater lamps
Cord clamp
Faston terminals

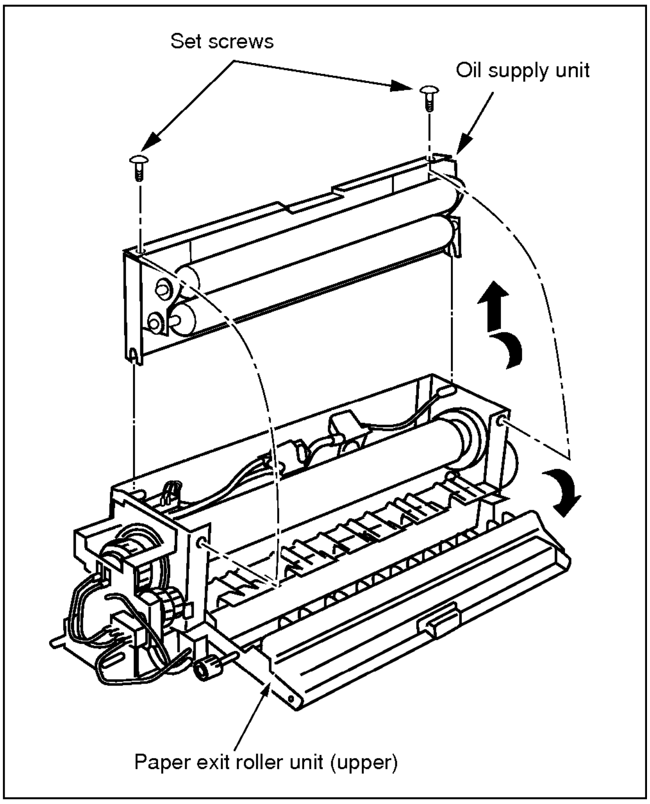
(8) Re-install the fixing heater lamps in the opposite sequence to removal.

3. Replacing the Fixing Cleaning Roller, Fixing Roller (A) and Fixing Cleaning Pad

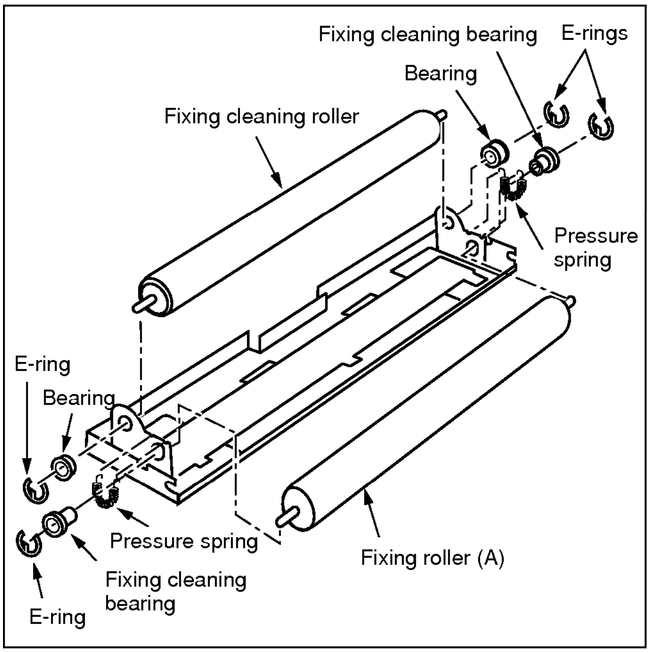
Caution: When installing the oil supply unit, hit it downward to fix it with the set screws.

a. Procedure

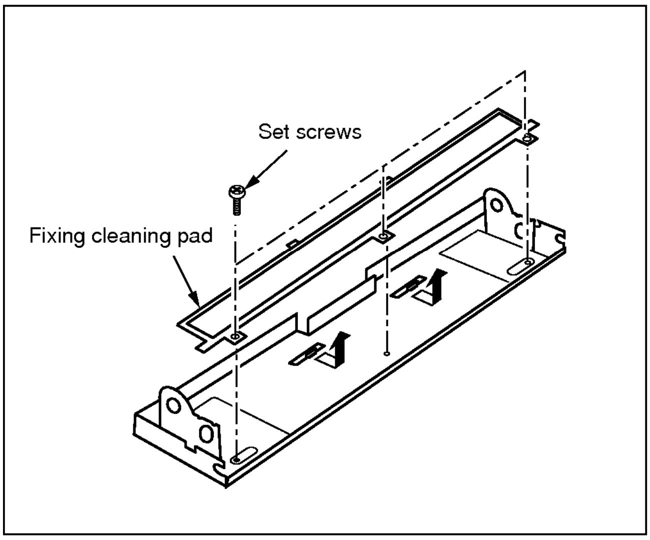
(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper).
(3) Remove the two set screws and open the oil supply unit upward then remove the oil supply unit.


Set screws
Oil supply unit
Paper exit roller unit (upper)

(4) Remove the two E-rings (front and rear), then remove the fixing cleaning roller.
(5) Remove the two pressure springs (front and rear).
(6) Remove the two E-rings and fixing cleaning bearings (front and rear), then remove the fixing roller (A).


Fixing cleaning bearing
E-rings
Bearing
Fixing cleaning roller
Pressure spring
E-ring
Bearing
Pressure spring
Fixing roller (A)
Fixing cleaning bearing
E-ring

(7) Remove the three set screws, then remove the fixing cleaning pad.


Set screws
Fixing cleaning pad

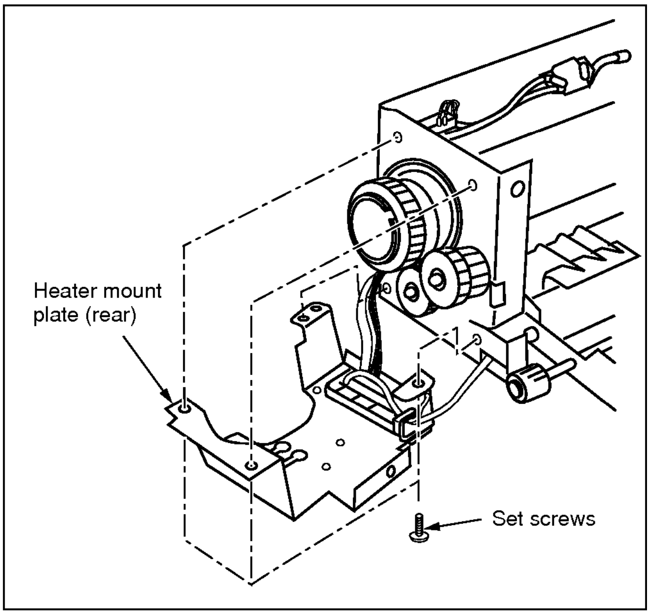
(8) Re-install the above parts in the opposite sequence to removal.

4. Removing and Re-installing the Fixing roller (upper)

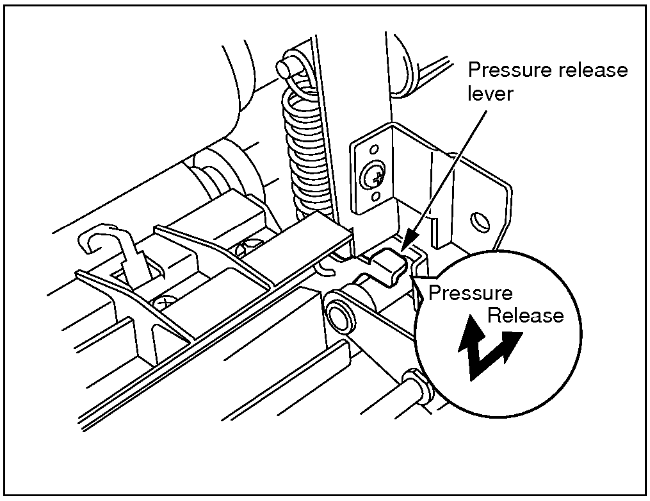
Caution: When replacing the heat insulation sleeve, apply tri-fluorocarbon to the inside and outside of the heat insulation sleeve, and insert it into the fixing roller (upper).

a. Procedure

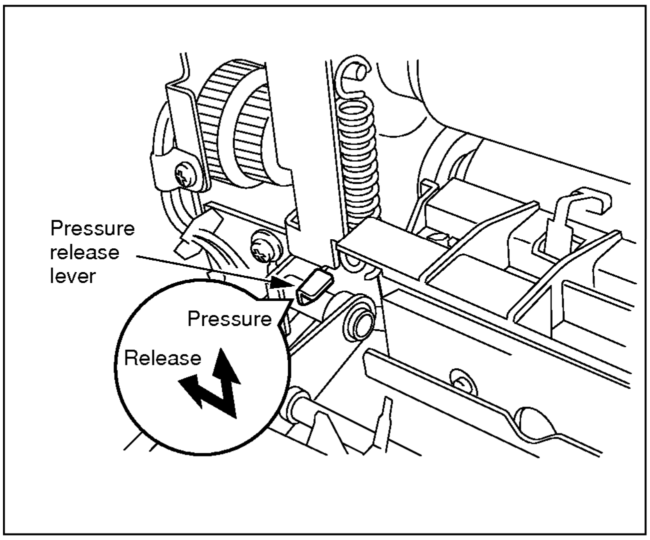
(1) Remove the fixing unit from the main body and remove the oil supply unit from the fixing unit.
(2) Remove the two fixing heater lamps.
(3) Remove the four set screws, then remove the heater mount plate (rear) from the fixing unit.
At this time, place the fixing unit on a stable platform the extent to which is 5 cm and do not strain the bind wiring from the fixing unit.


Heater mount plate (rear)
Set screws

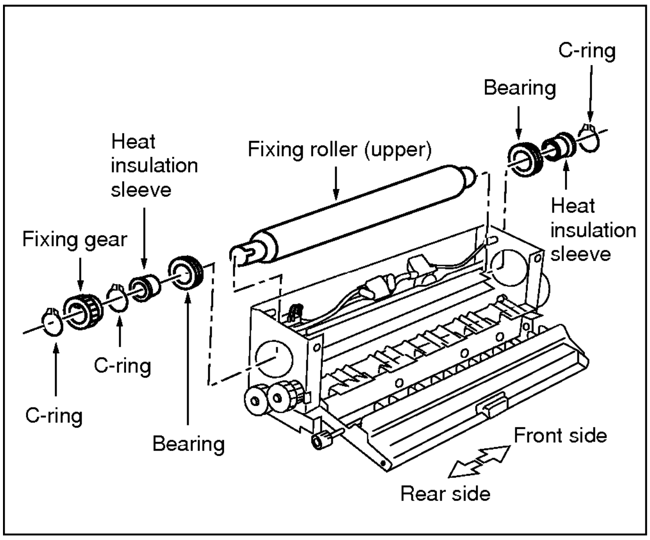
(4) Move the pressure release lever at the front side to the release position with a pair of pliers.


Pressure release lever
Pressure
Release

(5) Move the pressure release lever at the rear side to the release side in the same way.


Pressure release lever
Pressure
Release

(6) Remove the one C-ring, fixing gear and C-ring on the rear side.
(7) Remove the C-ring on the front side.
(8) Remove the two heat insulation sleeves (front and rear) and bearing on the front and rear side.
(9) Remove the fixing roller (upper).


C-ring
Bearing
Heat insulation sleeve
Fixing roller (upper)
Fixing gear
Heat insulation sleeve
C-ring
C-ring
Bearing
Front side
Rear side

(10) Re-install the fixing roller (upper) in the opposite sequence to removal.

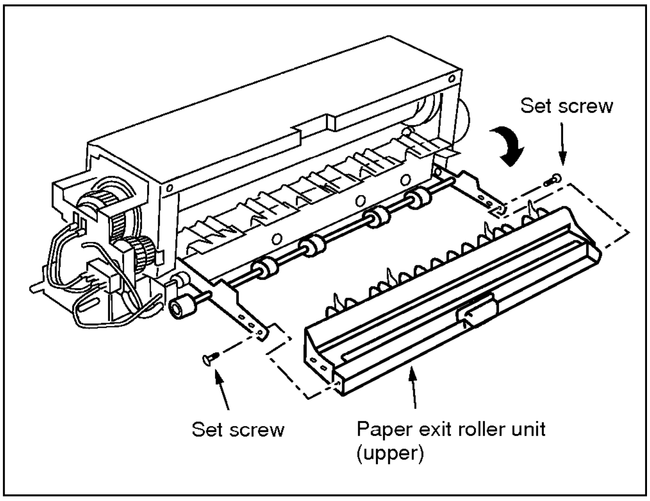
5. Removing and Re-installing the Fixing claw (upper)

Caution:

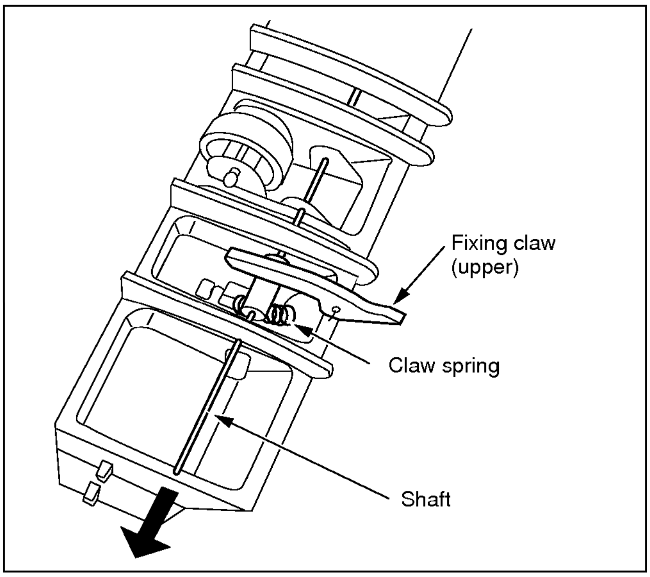
1. When installing the fixing claw (upper), be careful of the installation orientation.
2. The fixing claw (upper) should be firmly caught in the claw spring.

a. Procedure

(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper).
(3) Remove the two set screws, then remove the paper exit roller unit (upper).


Set screw
Set screw
Paper exit roller unit (upper)

(4) Remove the four claw springs from the fixing claws (upper).
(5) Pull out the shaft holding the fixing claws (upper), then remove the four fixing claws (upper).


Fixing claw (upper)
Claw spring
Shaft

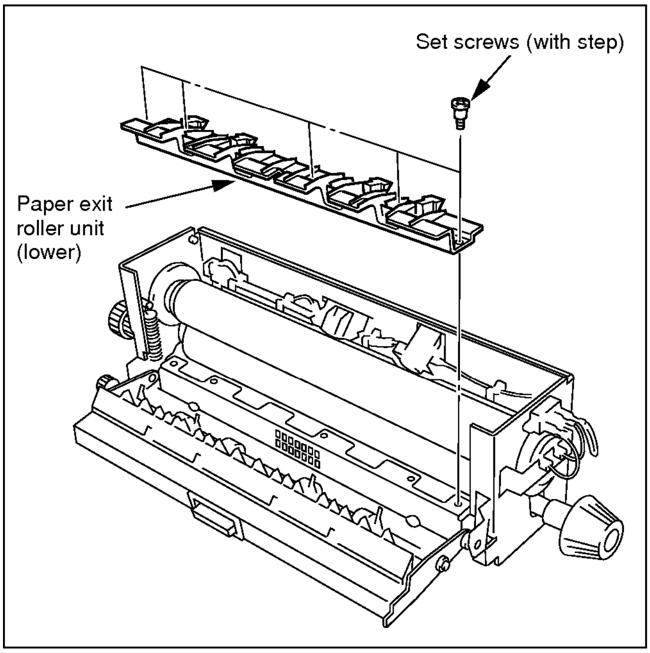
(6) Re-install the fixing claw (upper) in the opposite sequence to removal.

6. Removing and Re-installing the paper exit roller unit (lower)

Caution: When installing the paper exit roller unit (lower), be sure not to damage the roller by the claw.

a. Procedure

(1) Remove the fixing unit from the main body.
(2) Open the paper exit roller unit (upper), then remove the oil supply unit.
(3) Remove the five set screws (with step) holding the paper exit roller unit (lower).
(4) Be careful so that the fixing claw (lower) does not damage the fixing roller and remove the paper exit roller unit (lower) from the fixing unit.


Set screws (with step)
Paper exit roller unit (lower)

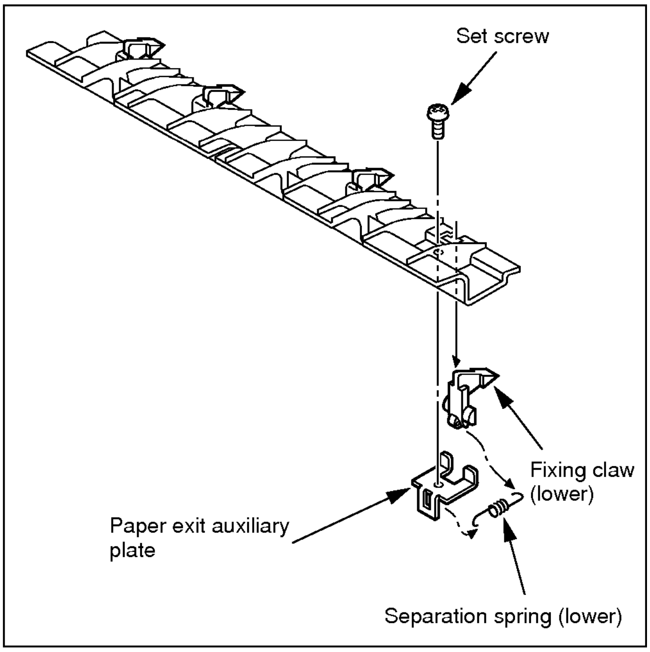
(5) Re-install the paper exit roller unit (lower) in the opposite sequence to removal.

7. Removing and Re-installing the Fixing Claw (lower)

Caution: The fixing claw (lower) should be firmly caught in the claw spring.

a. Procedure

(1) Remove the fixing unit from the main body.
(2) Remove the paper exit roller unit (lower).
(3) Remove the four separation springs (lower) from the fixing claws (lower).
(4) Remove the one set screw each, then remove the four paper exit auxiliary plates.
(5) Remove the four fixing claws (lower).


Set screw
Fixing claw (lower)
Paper exit auxiliary plate
Separation spring (lower)

(6) Re-install the fixing claw (lower) in the opposite sequence to removal.

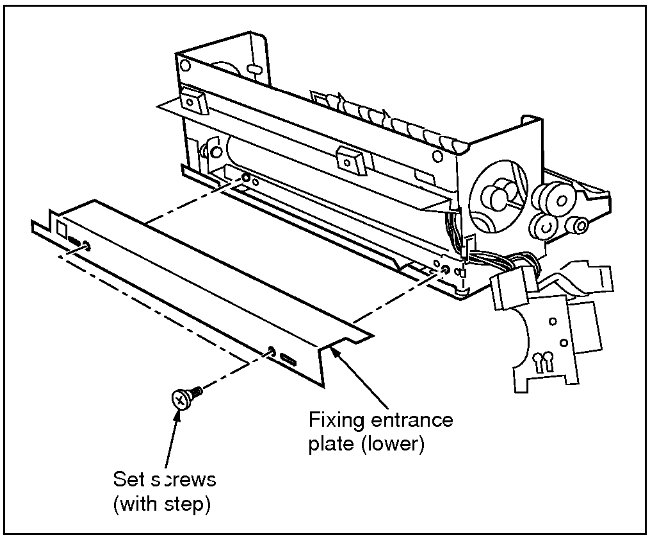
8. Removing and Re-installing the Fixing Roller (lower)

a. Procedure

(1) Remove the fixing unit from the main body.

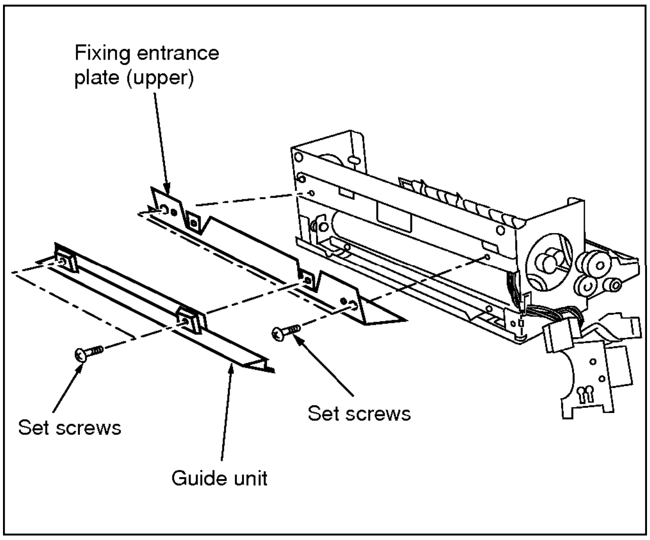
(2) Remove the fixing roller (upper) from the fixing unit.

(3) Remove the two set screws (with step), then remove the fixing entrance plate (lower).


Fixing entrance plate (lower)
Set screws (with step)

(4) Remove the two set screws, then remove the guide unit.

(5) Remove the two set screws, then remove the fixing entrance plate (upper).

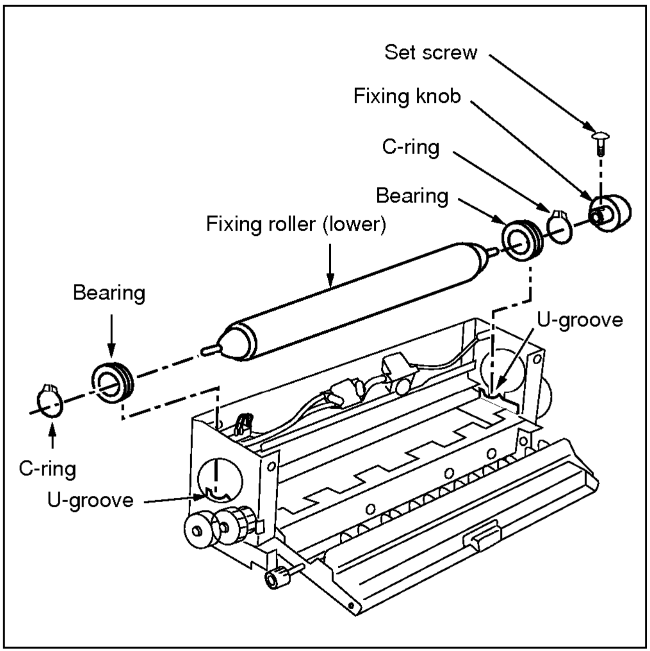

Fixing entrance plate (upper)
Set screws
Set screws
Guide unit

(6) Remove the paper exit roller unit (lower).

(7) Remove the fixing roller (lower) from the fixing unit.

(8) Remove the one set screw, then remove the fixing knob from the fixing roller (lower).

(9) Remove the two C-rings (front and rear), then remove the bearings from the fixing roller (lower).


Set screw
Fixing knob
C-ring
Bearing
Fixing roller (lower)
Bearing
U-groove
C-ring
U-groove

(10) Re-install the fixing roller (lower) in the opposite sequence to removal.

Caution: When installing the bearing, make sure that the flange of the bearing set into the U-groove of the fixing unit securely.

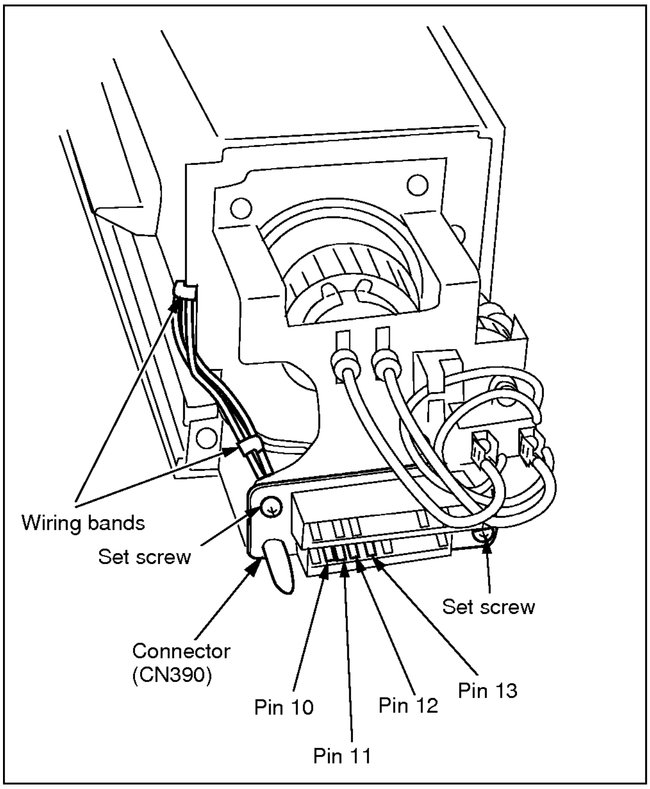
9. Removing and Re-installing the Fixing Temperature Sensor 1 and 2

⚠**Caution:**

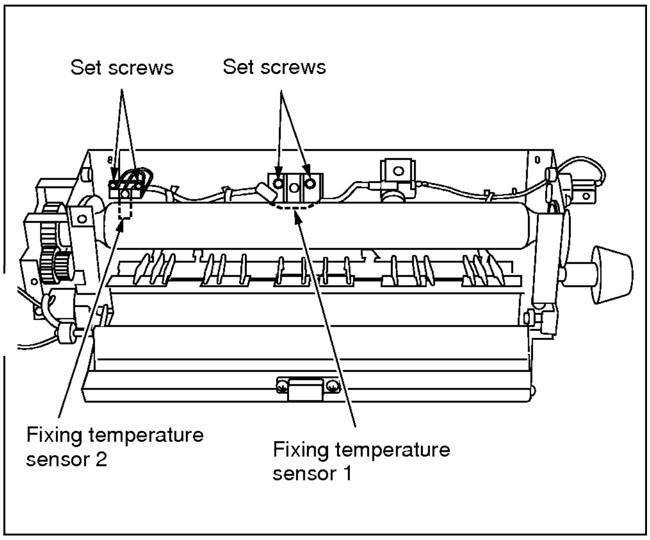
1. **After re-installing fixing temperature sensors 1 and 2, check that the sensor wires are not touching with the fixing roller (upper).**
2. **After installing the fixing temperature sensor 1 and 2, check that each sensor section of the fixing temperature sensor 1 and 2 contact with the fixing roller (upper).**
3. **Be sure to apply paint lock to the set screw of the installed sensor.**

a. Removal procedure

(1) Remove the fixing unit from the main body.
(2) Remove the oil supply unit from the fixing unit.
(3) Remove the two set screws, then release the fastening of the connector (CN390).
(4) Cut the two wiring bands, then remove the pins 10 to 13 of connector (CN390) with tweezers.

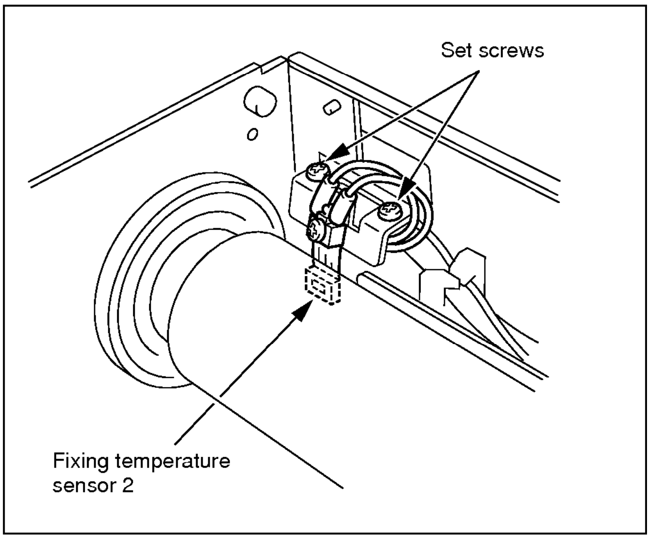

Wiring bands
Set screw
Connector (CN390)
Pin 10
Pin 11
Pin 12
Pin 13
Set screw

(5) Remove the two set screws, then remove the fixing temperature sensor 1.
(6) Remove the two set screws, then remove the fixing temperature sensor 2.


Set screws
Set screws
Fixing temperature sensor 2
Fixing temperature sensor 1

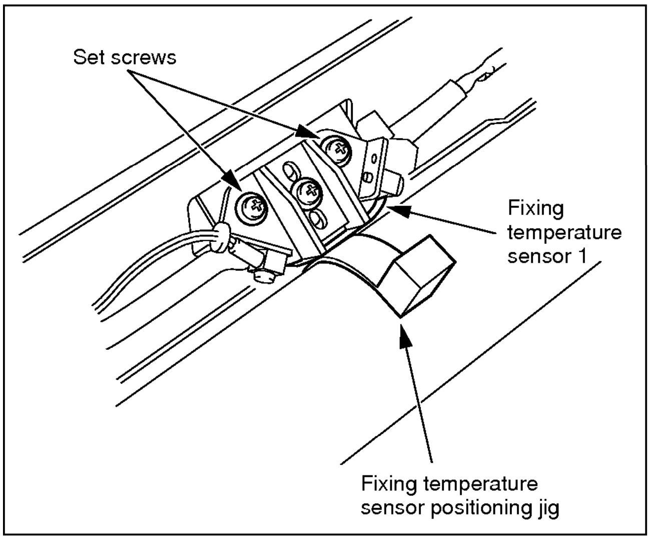
b. Installation procedure

(1) Fix the fixing temperature sensor 2 with the two set screws, then contact the sensor surface to the fixing roller (upper).

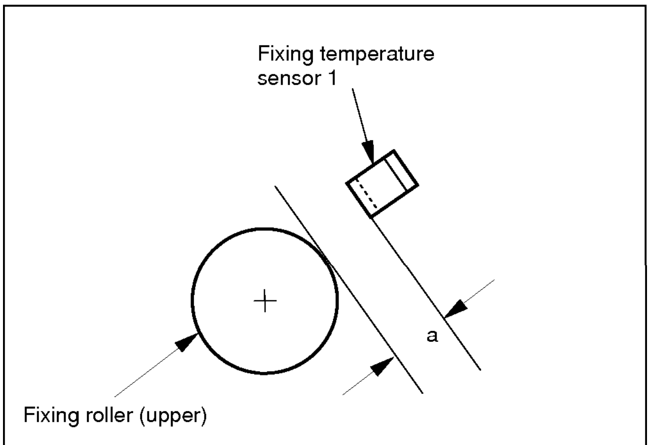

Set screws
Fixing temperature sensor 2

(2) Fix the fixing temperature sensor 1 with the two set screws.

(3) Set the fixing temperature sensor positioning jig between the fixing temperature sensor 1 and fixing roller (upper), then adjust the clearance between the sensor and the fixing roller (upper) is within the standard value with the two set screws.


Set screws
Fixing temperature sensor 1
Fixing temperature sensor positioning jig

(a) Set the distance 'a' between the fixing roller (upper) and fixing temperature sensor 1 so that it is equal to the thickness of the fixing temperature sensor positioning jig.


Fixing temperature sensor 1
a
Fixing roller (upper)

Standard: a =0.9±0.15mm

(4) Coat the set screws of each sensor with paint lock agent.

(5) Insert the connector pins of each sensor into applicable position of the connector (CN390).

(6) The reminder of the installation procedure is in the opposite sequence to removal.

10.Removing and Re-installing the Thermostat

⚠**Caution:**

1. **After re-installing the thermostat, check that the wiring is not touching with the fixing roller (upper).**
2. **Be sure to coat the set screw of the thermostat with screw lock agent after re-installing the thermostat.**

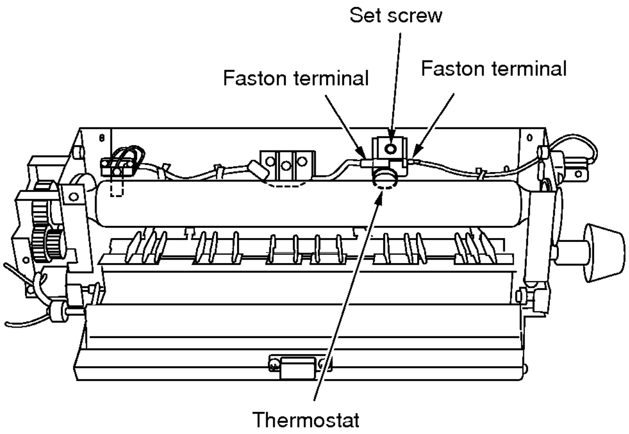
a. Removal procedure

(1) Remove the fixing unit from the main body.

(2) Remove the oil supply unit from the fixing unit.

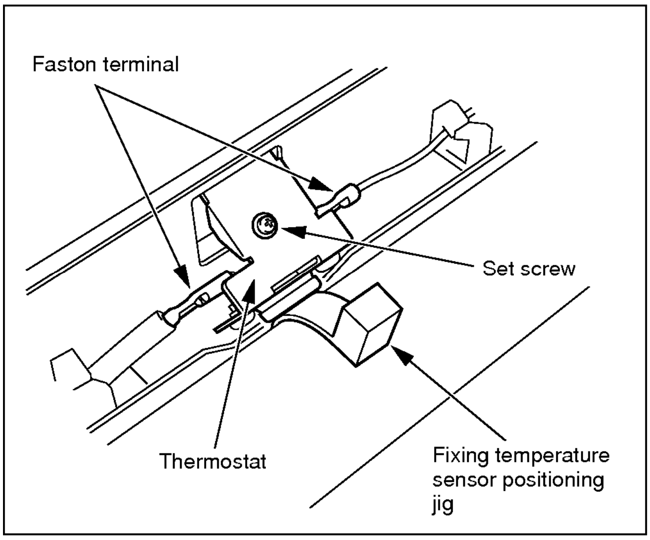
(3) Disconnect the two faston terminals connected to the thermostat.

(4) Remove the one set screw, then remove the thermostat.

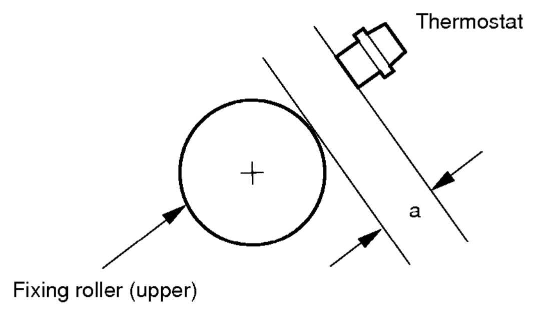

Set screw
Faston terminal
Faston terminal
Thermostat

b. Installation procedure

(1) Set the fixing temperature sensor positioning jig between the thermostat and the fixing roller (upper), then fix the thermostat with the set screw so that the clearance between the thermostat and the fixing roller (upper) is the standard value.


Faston terminal
Set screw
Thermostat
Fixing temperature sensor positioning jig

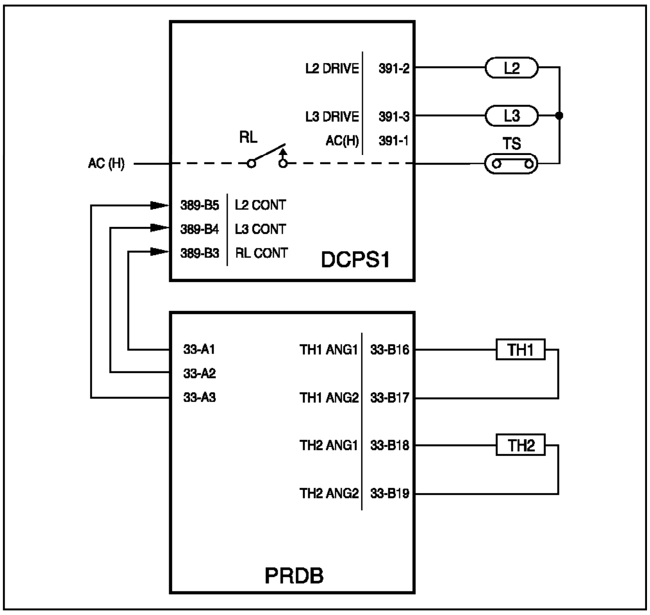
(a) Set the distance ‘a’ between the fixing roller (upper) and the thermostat so that it is equal to the thickness of the fixing temperature sensor positioning jig.


Thermostat
a
Fixing roller (upper)

Standard: a =0.9±0.15mm

(2) Coat the set screw of the thermostat with paint lock agent.
(3) Connect the two faston terminals.
(4) The reminder of the installation procedure is in the opposite sequence to removal.

[4] Fixing Temperature Control


L2 DRIVE
391-2
L3 DRIVE
391-3
AC(H)
391-1
RL
AC (H)
L2
L3
TS
389-B5
L2 CONT
389-B4
L3 CONT
389-B3
RL CONT
DCPS1
33-A1
33-A2
33-A3
TH1 ANG1
33-B16
TH1 ANG2
33-B17
TH2 ANG1
33-B18
TH2 ANG2
33-B19
TH1
TH2
PRDB

The fixing roller (upper) is heated by L2 (fixing heater lamp 1), and L3 (fixing heater lamp 2).
The PRDB (printer drive board) detects the temperature of the fixing roller (upper) by means of TH1 (fixing temperature sensor 1) and TH2 (fixing temperature sensor 2), and controls L2 and L3 via DCPS1.

1. Operation

a. Temperature control

(1) Warmup
The PRDB (printer drive board) turns ON the fixing heater lamp circuit in DCPS1 (DC power supply unit 1) as soon as the machine is switched ON, causing L2 and L3 to go ON until the fixing roller (upper) reaches the specified temperature.
After the completion of warm-up, the PRDB goes ON and OFF repeatedly so as to maintain the set temperature.
(Setting temperature)
195°C
(Warm up time)
Within 90 seconds (Room temperature : 20°C)

Lamp / Mode	L2	L3
In idling	OFF	ON/OFF
In copying	ON/OFF	ON/OFF

b. Protection against abnormality

TS (thermostat) is used to prevent the temperature of the fixing roller (upper) from rising abnormally. This thermostat is not in contact with the fixing roller (upper).

The operating temperature of the thermostat is shown below.

TS: Approx. 190°C

2. Signals

a. Input signals

(1) TH2 ANG 1, 2 (TH2 → PRDB)
TH2 output signal
This signal outputs a voltage that is proportional to the surface temperature at the center of the fixing roller (upper).
This signal is used for temperature control and also for detecting an abnormally high temperature or other abnormality.

(2) TH1 ANG 1, 2 (TH1 → PRDB)
TH1 output signal
This signal outputs a voltage proportional to the surface temperature at the end of the fixing roller (upper). It is not directly related to temperature control but is used for detecting an abnormality.

b. Output signals

(1) L2 DRIVE (DCPS1 → L2)
L2 AC(N) supply line.
The AC supply is switched ON or OFF according to L2 CONT.

(2) L3 DRIVE (DCPS1 → L3)
L3 AC(N) supply line.
The AC supply is switched ON or OFF according to L3 CONT.

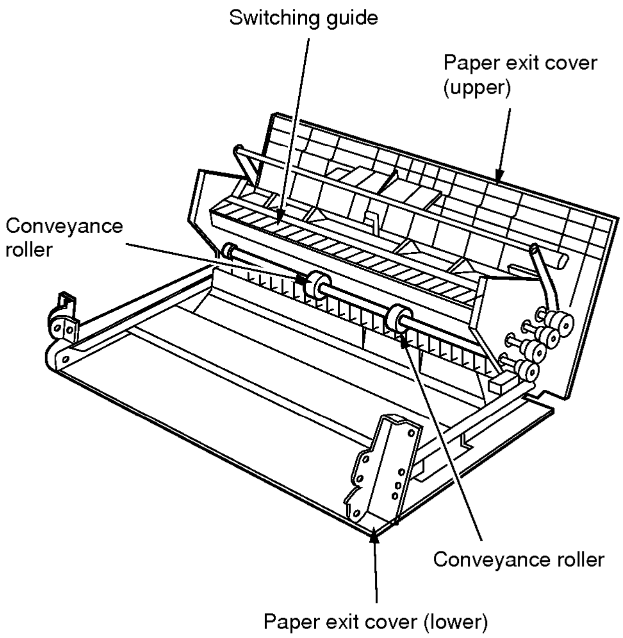
(3) L2 CONT (PRDB → DCPS1)
L2 ON/OFF control signal
[L]: L2 ON
[H]: L2 OFF

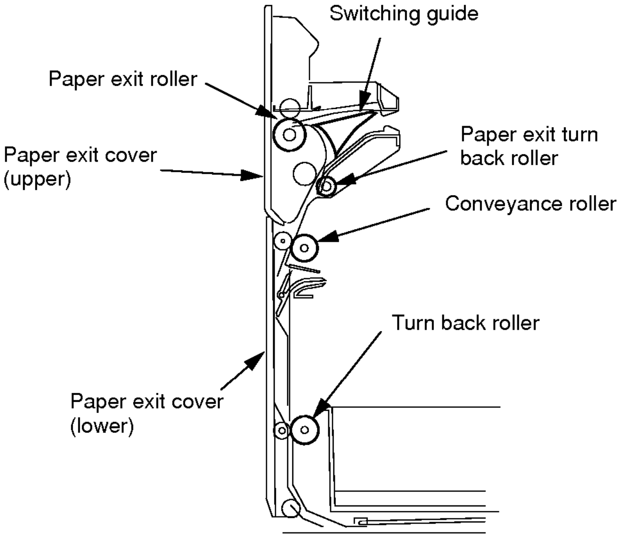
(4) L3 CONT (PRDB → DCPS1)
L3 ON/OFF control signal
[L]: L3 ON
[H]: L3 OFF

(5) RL CONT (PRDB → DCPS1)
RL (main) ON/OFF control signal
[L]: RL ON
[H]: RL OFF

REVERSAL AND PAPER EXIT SECTION

[1] Construction


Switching guide
Paper exit cover (upper)
Conveyance roller
Conveyance roller
Paper exit cover (lower)


Switching guide
Paper exit roller
Paper exit turn back roller
Paper exit cover (upper)
Conveyance roller
Turn back roller
Paper exit cover (lower)

[2] Mechanism

	Mechanisms	Methods
*1	Paper path switching	Switching guide
	Paper conveyance	Roller conveyance

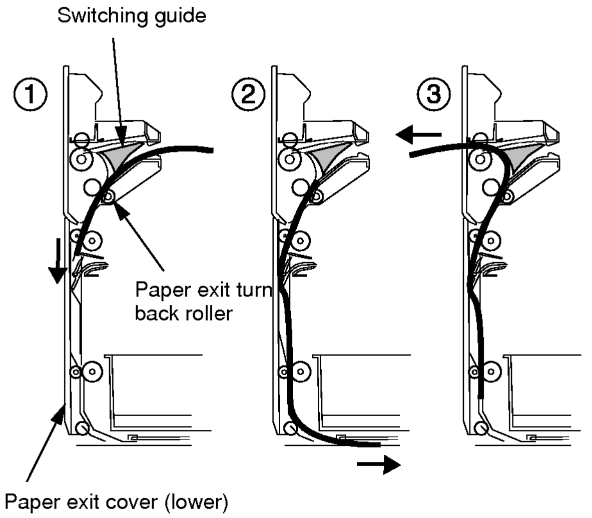
*1: Paper path switching

Paper exited from the fixing unit of the main body is divided to straight paper exit and reversal paper exit by the switching guide.

The switching guide is operated by ON/OFF of the gate solenoid (SD5).

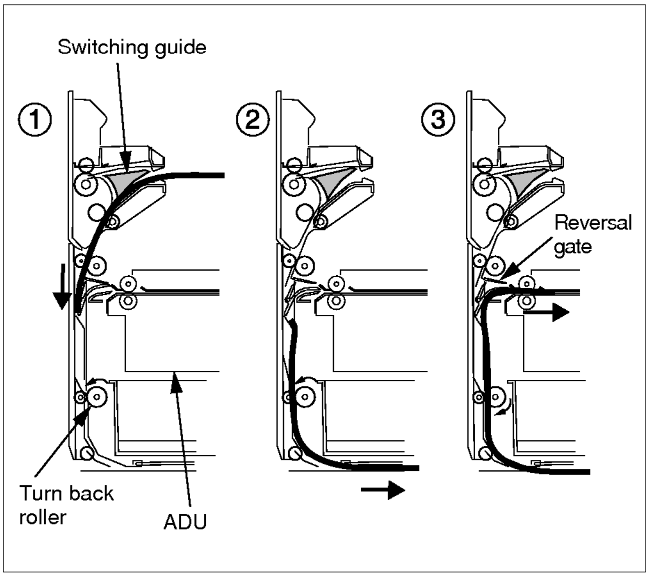
a. Reversal paper exit operation

Paper is conveyed down the paper exit cover (lower) by the switching guide. When the trailing edge of the paper passes the switching guide the paper exit turn back roller rotates in the reverse direction and the paper is exited face down.


Switching guide
①
②
③
Paper exit turn back roller
Paper exit cover (lower)

b. ADU reversal operation

Paper is conveyed down the paper exit cover (lower) by the switching guide. When the trailing edge of the paper passes the reversal guide the turn back roller rotates in the reverse direction and the paper is conveyed to the ADU stacker.


Switching guide
①
②
③
Reversal gate
Turn back roller
ADU

[3] Disassembly and Re-assembly

1. Removing and Re-installing the Reversal and Paper Exit Unit

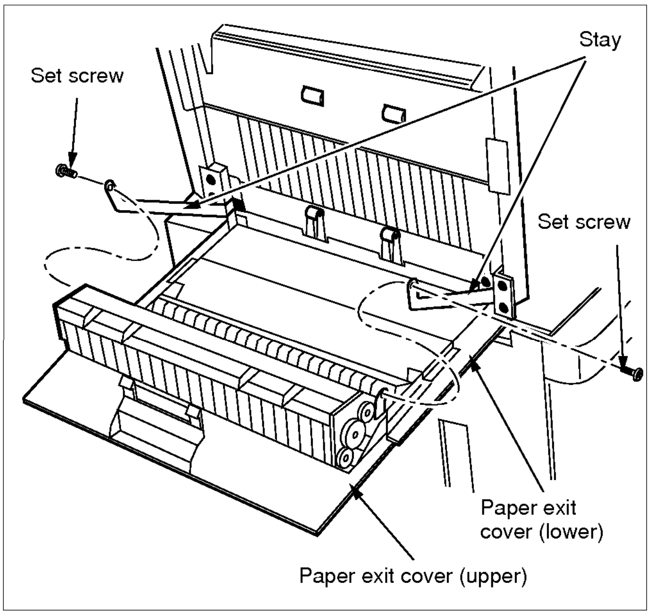
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

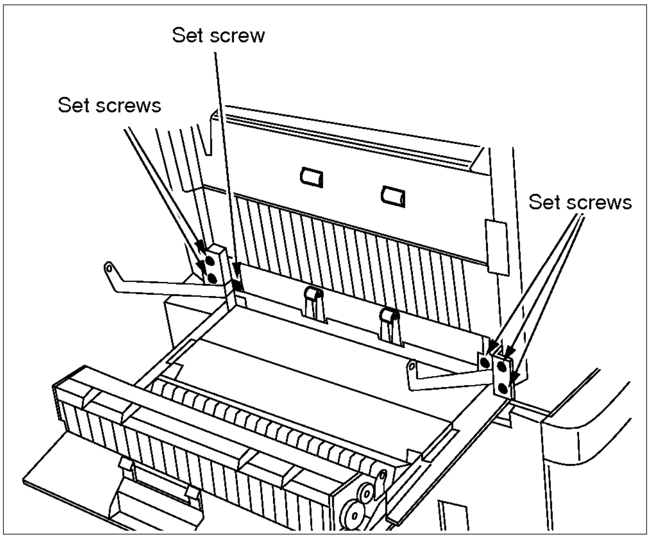
(1) Remove the left side cover and rear cover of the main body.

(2) Open the paper exit cover (upper).

(3) Remove the two set screws for the stay of the reversal and paper exit unit, then slowly open the paper exit cover (lower).

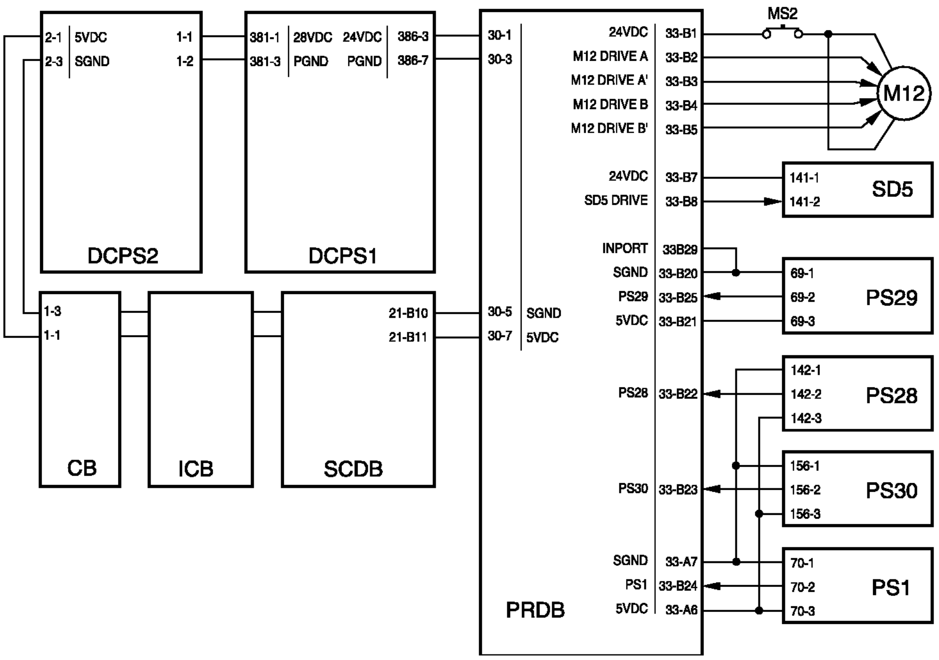

Stay
Set screw
Set screw
Paper exit cover (lower)
Paper exit cover (upper)

(4) While holding the reversal and paper exit unit, remove the six set screws, then remove the reversal and paper exit unit.


Set screw
Set screws
Set screws

(5) Re-install the reversal and paper exit unit in the opposite sequence to removal.

[4] Reversal Paper Exit Control


DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 28VDC 24VDC 386-3
381-3 PGND PGND 386-7
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11
PRDB
30-1
30-3
30-5 SGND
30-7 5VDC
24VDC 33-B1
M12 DRIVE A 33-B2
M12 DRIVE A' 33-B3
M12 DRIVE B 33-B4
M12 DRIVE B' 33-B5
24VDC 33-B7
SD5 DRIVE 33-B8
INPORT 33B29
SGND 33-B20
PS29 33-B25
5VDC 33-B21
PS28 33-B22
PS30 33-B23
SGND 33-A7
PS1 33-B24
5VDC 33-A6
MS2
M12
SD5
141-1
141-2
PS29
69-1
69-2
69-3
PS28
142-1
142-2
142-3
PS30
156-1
156-2
156-3
PS1
70-1
70-2
70-3

Reversal and paper exit section switches the paper path to straight paper exit or reversal paper exit by the SD5 (gate). SD5 is driven by the PRDB (printer drive board).
Related signals are PS1 (paper exit), PS28 (reversal detect 1), PS29 (fixing exit) and PS30 (reversal detect 2).

1. Operation

a. Straight paper exit control

M12 (reversal paper exit) rotates in the forward direction after the specified time from when PS29 goes ON. At this time, the switching guide is OFF, hence the paper passes over the top of the switching guide and is exited.
M12 goes OFF after the specified time from when PS1 detects the trailing edge of the paper.

b. Paper reversal and exit control

M12 rotates in the forward direction after the specified time from when PS29 goes ON, causing the paper to be conveyed to the switching guide. At this time, SD5 goes ON after the specified time from when MC1 goes ON, causing the switching guide to move to the paper reversal and exit side. As a result, the paper is conveyed to the back side of the reversal and exit section cover (lower). After the specified time from when PS28 (reversal detection 1) detects the trailing edge of the paper and goes OFF, M12 switches to reverse rotation, and the paper is fed in the reverse direction.
The reverse-fed paper is prevented from returning to the fixing section by the shape of the switching guide, and instead is fed to the paper exit section. As a result, the paper is exited in a reversed condition. (Face down)

2. Signals

a. Input signals

(1) PS1 (PS1 → PRDB)
Paper passage detection signal at the paper exit section.
This signal becomes [H] when paper is detected.

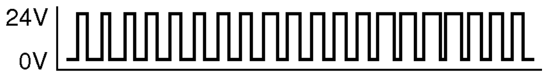
(2) PS28 (PS28 → PRDB)
Paper passage detection signal at the turn back roller section.
This signal becomes [L] when paper is detected.

(3) PS29 (PS29 → PRDB)
Paper passage detection signal at the fixing exit section.
This signal becomes [H] when paper is detected.

(4) PS30 (PS30 → PRDB)
Paper passage detection signal at the paper exit turn back roller section.
This signal becomes [L] when paper is detected.

b. Output signals

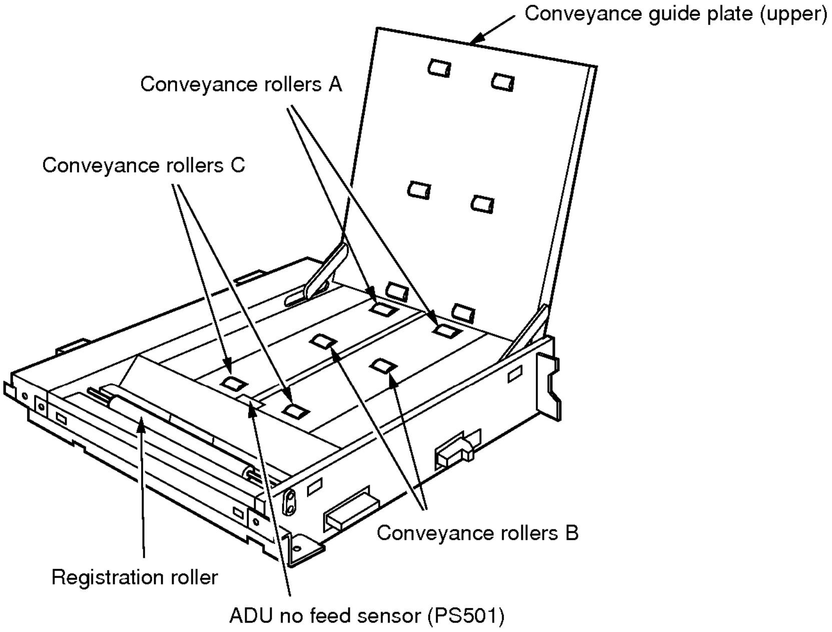
(1) M12 DRIVE A, A', B, B' (PRDB → M12)
~~M12 ON/OFF drive signal~~



(2) SD5 DRIVE (PRDB → SD5)
SD5 drive control signal
[L]: SD5 ON
[H]: SD5 OFF

ADU PAPER FEED/CONVEYANCE SECTION

[1] Construction


Conveyance guide plate (upper)
Conveyance rollers A
Conveyance rollers C
Conveyance rollers B
Registration roller
ADU no feed sensor (PS501)

[2] Mechanism

Mechanisms	Methods
*1 Paper feed	Non-stack selection
Paper conveyance	Conveyance roller (three) Registration roller (one)
Conveyance drive	Gear+Timing belt
*2 Jam clearance	Opening/ closing of conveyance guide plate (upper), entrance guide plate (upper) and exit guide plate (upper)
Applicable sizes of paper	A3 to B5R

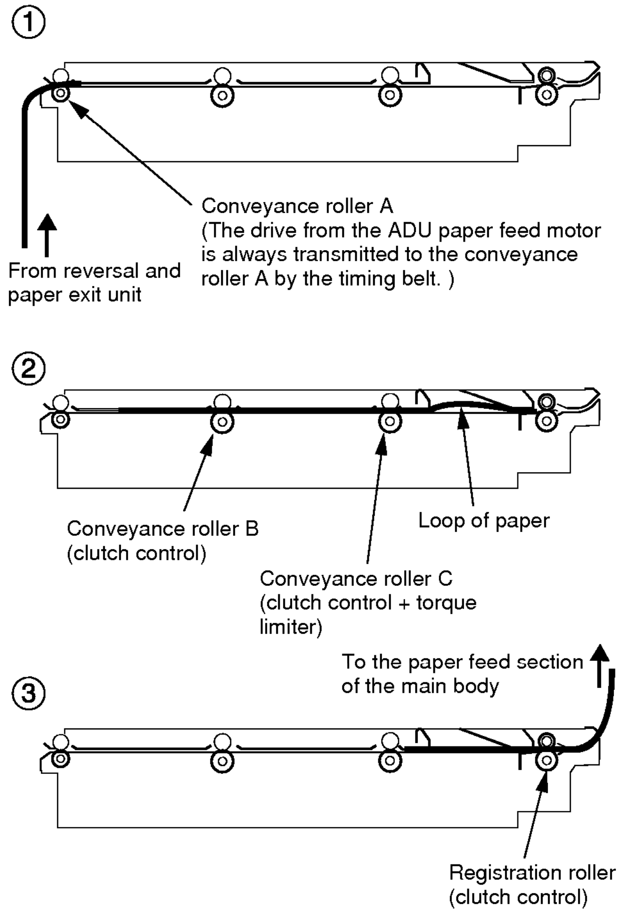
*1: Paper feed mechanism

ADU paper feed operation is performed by the drive of the ADU paper feed motor (M501) and three clutche control. (Refer to the drive system diagram.)

(1) The paper reversed at the reversal and paper exit section is fed to the inside of the ADU by the conveyance roller A.

(2) The appropriate loop of the paper is formed by the clutch control that transmits the drive to the conveyance rollers B and C.

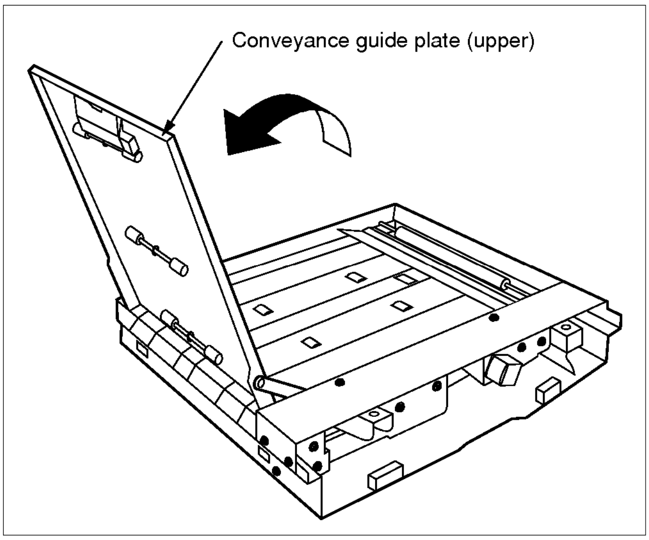
(3) Paper is refed to the paper feed section of the main body when the drive is transmitted to the registration roller via the registration clutch.


①
From reversal and paper exit unit
Conveyance roller A
(The drive from the ADU paper feed motor is always transmitted to the conveyance roller A by the timing belt.)
②
Conveyance roller B
(clutch control)
Loop of paper
Conveyance roller C
(clutch control + torque limiter)
③
To the paper feed section of the main body
Registration roller
(clutch control)

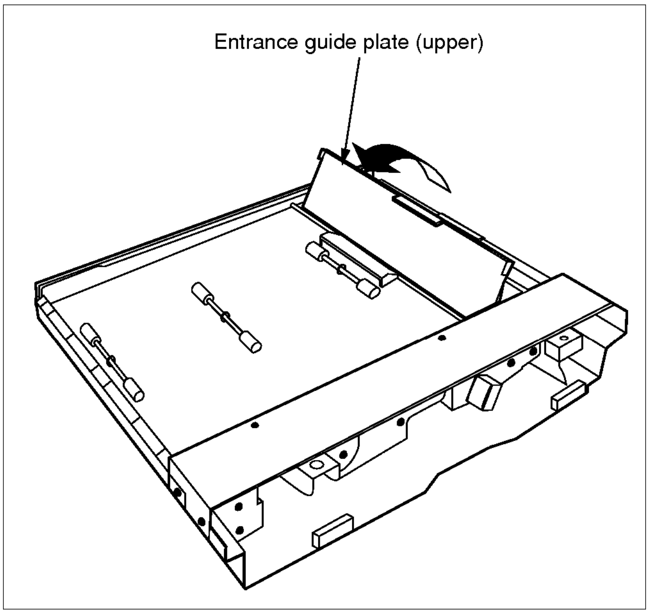
*2: Jam clearance mechanism

There is a jam clearance mechanism on each of the conveyance section, paper feed section and paper exit section. Jammed paper can be removed by opening and closing the conveyance guide plate (upper), entrance guide plate (upper) and exit guide plate (upper), depending upon where the jam occurres.

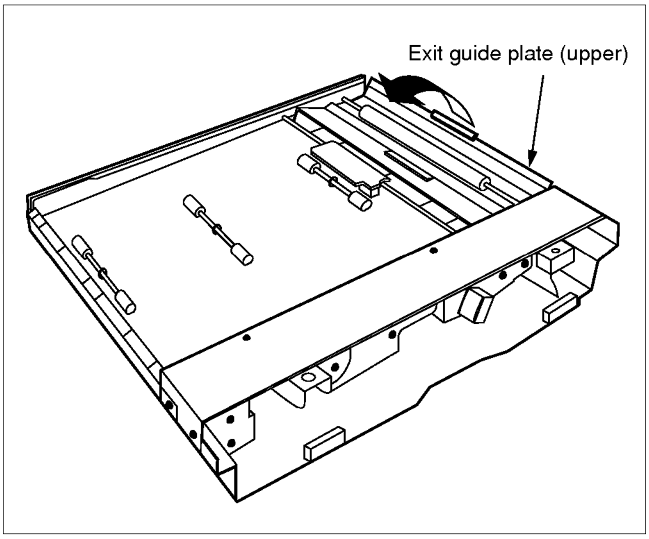
- **Conveyance section**


Conveyance guide plate (upper)

- **Paper feed section**


Entrance guide plate (upper)

- **Paper exit section**


Exit guide plate (upper)

[3] Disassembly and Re-assembly

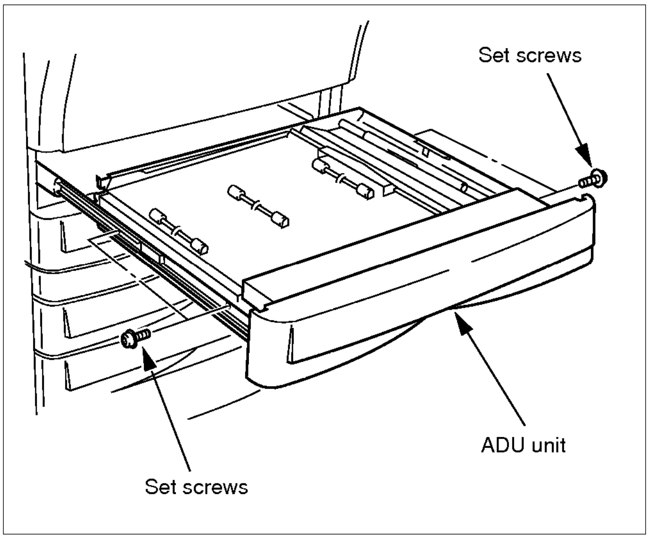
1. Removing and Re-installing the ADU Unit

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

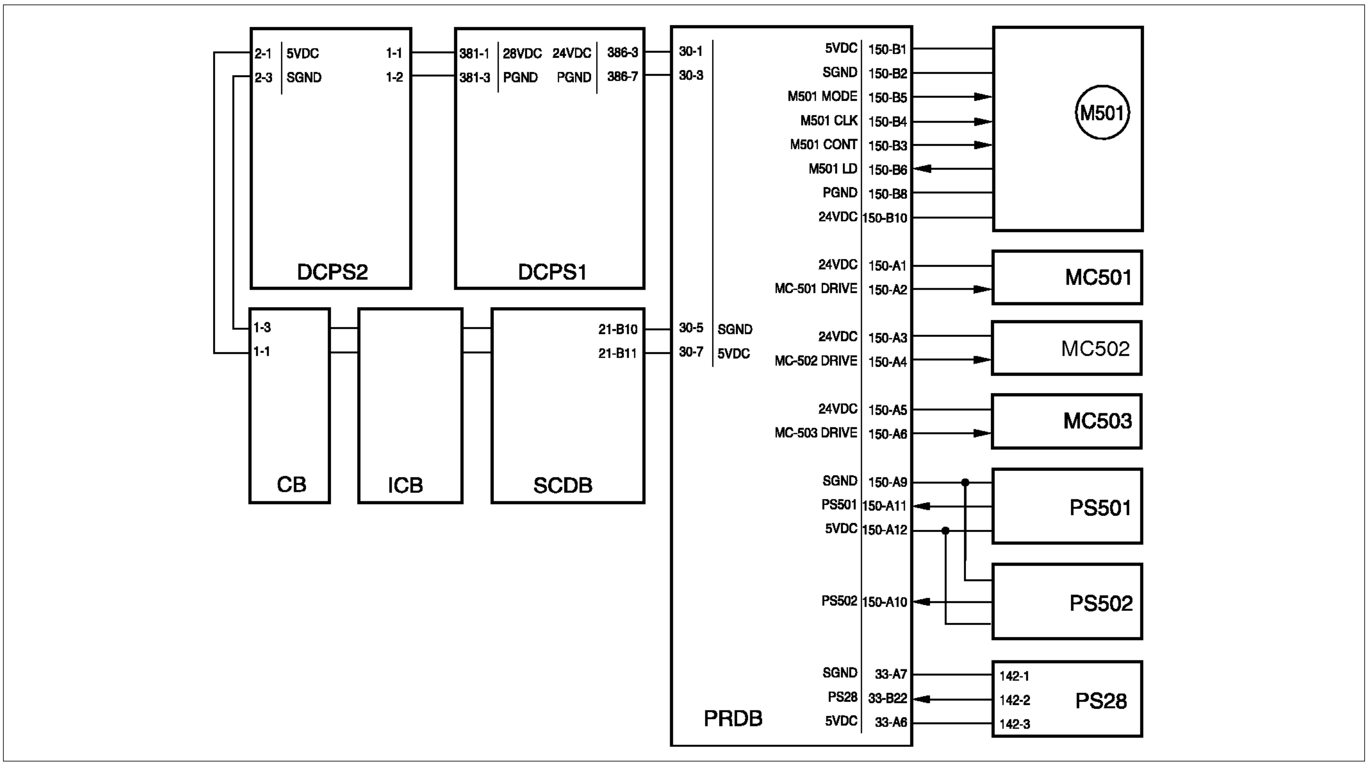
(1) Pull out the ADU unit, then remove the four set screws.

(2) Lift up the ADU unit, then remove it.



(3) Re-install the ADU unit in the opposite sequence to removal.

[4] Conveyance Control


DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 28VDC 24VDC 386-3
381-3 PGND PGND 386-7
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11
PRDB
30-1
30-3
30-5 SGND
30-7 5VDC
5VDC 150-B1
SGND 150-B2
M501 MODE 150-B5
M501 CLK 150-B4
M501 CONT 150-B3
M501 LD 150-B6
PGND 150-B8
24VDC 150-B10
M501
24VDC 150-A1
MC-501 DRIVE 150-A2
MC501
24VDC 150-A3
MC-502 DRIVE 150-A4
MC502
24VDC 150-A5
MC-503 DRIVE 150-A6
MC503
SGND 150-A9
PS501 150-A11
5VDC 150-A12
PS501
PS502 150-A10
PS502
SGND 33-A7
PS28 33-B22
5VDC 33-A6
142-1
142-2
142-3
PS28

Conveyance takes place as a result of the transmission of drive power from M501 (ADU paper feed) to conveyance roller A, from MC503 (ADU re-start) to conveyance roller B, from MC502 (ADU loop) to roller C, and from MC501 (ADU paper feed) to the registration roller.

MC501, MC502 and MC503 are driven by the PRDB (printer drive board).
Related signals are PS501 (ADU no feed), PS502 (ADU registration) and PS28 (reversal detect 1).

1. Operation

a. Paper feed control

When PS28 is turned OFF by the paper that is reversed in the paper reversal and exit section, M501 goes ON, and conveyance roller A rotates, causing the paper to be conveyed to the ADU. Subsequently, MC503 goes ON, causing paper exit roller B to rotate and feed the paper to the ADU.
MC503 goes OFF after the specified time from when PS501 detects the leading edge of the paper and goes ON. As a result, the paper strikes the registration roller, causing an appropriate paper loop to be formed.
MC502 goes ON after the specified time from when PS28 goes OFF. As a result, conveyance roller C is driven so as to assist in the formation of an appropriate loop. MC502 goes OFF while MC503 goes OFF.

b. Re-start control

MC501 goes ON after the specified time from when PS501 goes ON, causing the paper to be re-started and conveyed to the 2nd paper feed section. MC501 goes OFF after the specified time from when it goes ON.

c. M501 ON/OFF timing

(1) ON timing
When PS28 goes OFF
(2) OFF timing
When MC501 goes OFF when the last sheet of paper re-starts

2. Signals

a. Input signals

(1) PS501 (PS501 → PRDB)
Jammed paper detection signal at entrance of ADU conveyance section.
This signal becomes [L] when paper is detected.

(2) PS502 (PS502 → PRDB)
Jammed paper detection signal at inside of ADU conveyance section.
This signal becomes [L] when paper is detected.

(3) PS28 (PS28 → PRDB)
Paper passage detection signal at the turn back roller section.
This signal becomes [L] when paper is detected.

(4) M501 LD (M501 → PRDB)
M501 rotational status detection signal
This signal becomes [L] when M501 reaches the set speed.

b. Output signals

(1) MC501 DRIVE (PRDB → MC501)
MC501 ON/OFF drive signal
[H]: MC501 OFF
[L]: MC501 ON

(2) MC502 DRIVE (PRDB → MC502)
MC502 ON/OFF drive signal
[H]: MC502 OFF
[L]: MC502 ON

(3) MC503 DRIVE (PRDB → MC503)
MC503 ON/OFF drive signal
[H]: MC503 OFF
[L]: MC503 ON

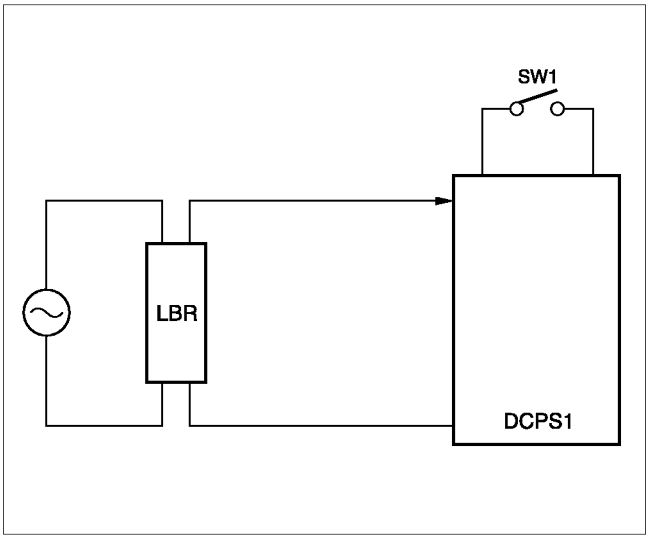
(4) M501 MODE (PRDB → M501)
M501 rotational speed control switching signal
[L]: High speed
[H]: Low speed

(5) M501 CLK (PRDB → M501)
M501 rotational speed control reference clock signal

(6) M501 CONT (PRDB → M501)
M501 drive control signal
[L]: M501 ON
[H]: M501 OFF

OTHER KINDS OF CONTROL

[1] Parts Through Which Current Flows When the Main Switch is Turned OFF



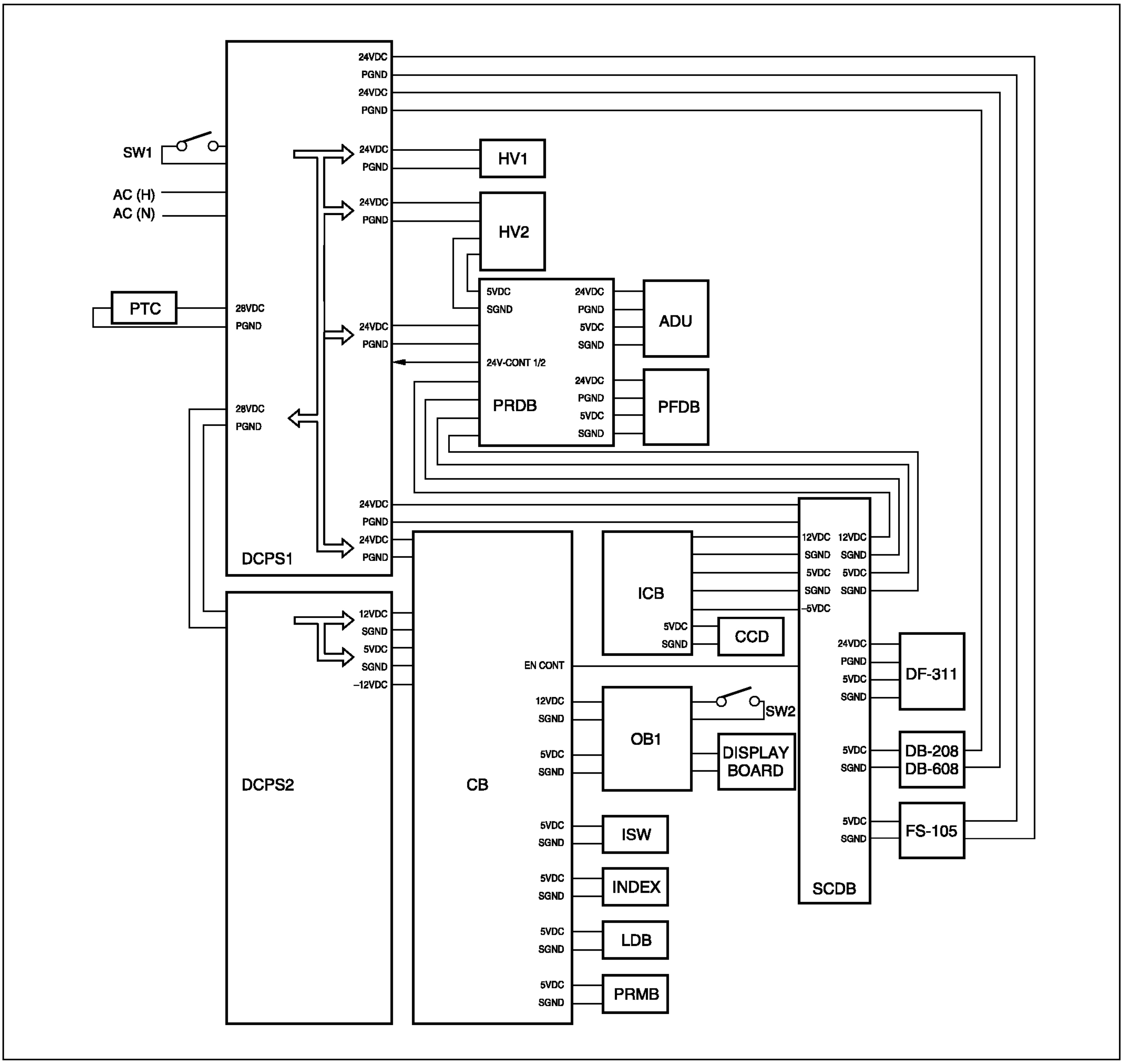
1. Operation

Current flows through the following parts if the power cord is plugged into the power outlet, regardless of whether or not SW1 (main power) is ON or OFF.

a. LBR (leak breaker)

If an internal part short circuits, causing a current of more than 20 A to flow, the breaker goes OFF, cutting off the power to the machine.

[2] Parts That Operate When the Power Switch is Turned ON


SW1
AC (H)
AC (N)
PTC
DCPS1
24VDC
PGND
28VDC
HV1
HV2
PRDB
5VDC
SGND
24V-CONT 1/2
ADU
PFDB
DCPS2
12VDC
–12VDC
CB
EN CONT
ICB
CCD
-5VDC
OB1
SW2
DISPLAY BOARD
ISW
INDEX
LDB
PRMB
SCDB
DF-311
DB-208
DB-608
FS-105

1. Operation

a. Parts that operate when the SW1 (main power) is turned ON

- DCPS1 (DC power supply unit 1)
- DCPS2 (DC power supply unit 2)
- CB (control board)
- OB1 (operation board 1)
- PTC (PTC heater)
- KRDS

When the SW1 (main power) is turned ON, the AC supply voltage is applied to the DCPS1 (DC power supply unit 1). As a result, the DCPS1 supplies 28 VDC voltage to the DCPS2 and PTC.

DCPS2 supplies 12 VDC, -12 VDC, and 5 VDC power supply voltages to the CB from the 28 VDC power supply. The 12 VDC and 5 VDC power supply voltage are supplied to the OB1 via the CB.

b. Parts that operate when the SW2 (sub power) is turned ON

- SCDB (scanner drive board)
- ICB (image control board)
- PRDB (printer drive board)
- Options

If SW2 (sup power) is turned ON while SW1 is ON, the drive signal from the DC/DC converter is sent from the CB to the SCDB, and 5 VDC, -5 VDC and 12 VDC power supply voltages are generated inside the SCDB.

As a result, all of the 5 VDC, -5 VDC and 12 VDC power supply voltages are supplied to the ICB, the 5 VDC and 12 VDC power supply voltages are supplied to the PRDB, and the 5 VDC power supply voltage is supplied to the control board of each option.

Subsequently, a control signal is sent from the PRDB to DCPS1 to generate the 24 VDC power supply. The 24 VDC power supply generated inside DCPS1 is supplied to each drive board and option, the initial operation performs.

2. Signals

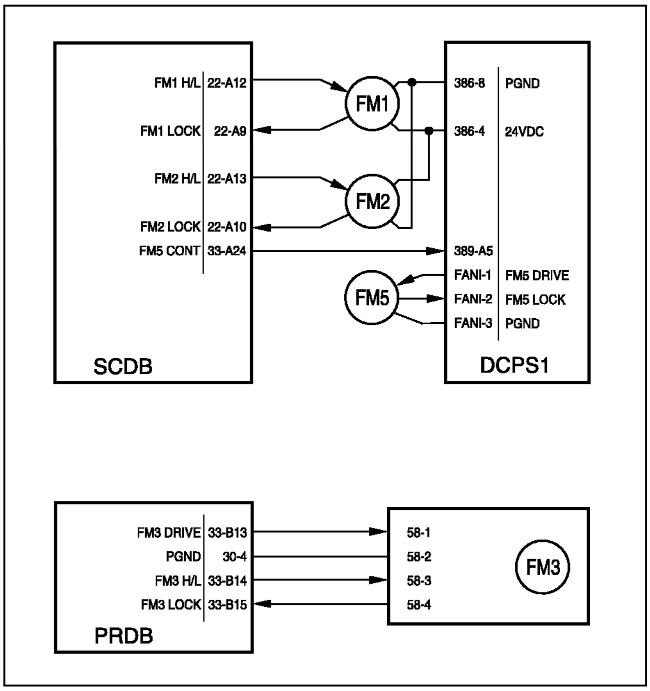
a. Output signal

(1) RL CONT (PRDB → DCPS1)

Signal which controls RL in the DCPS1.

If an abnormality occurs in the main body, this signal becomes [H], causing RL, to go OFF.

[3] Cooling Fan Control


FM1 H/L
22-A12
FM1 LOCK
22-A9
FM2 H/L
22-A13
FM2 LOCK
22-A10
FM5 CONT
33-A24
SCDB
FM1
FM2
FM5
386-8
PGND
386-4
24VDC
389-A5
FANI-1
FM5 DRIVE
FANI-2
FM5 LOCK
FANI-3
PGND
DCPS1
FM3 DRIVE
33-B13
PGND
30-4
FM3 H/L
33-B14
FM3 LOCK
33-B15
PRDB
58-1
58-2
58-3
58-4
FM3

The SCDB (scanner drive board) drives FM1 (scanner cooling fan 1) and FM2 (scanner cooling fan 2). The PRDB (printer drive board) drives FM3 (main body cooling fan). The DCPS1 (DC power supply unit 1) drives FM5 (DCPS cooling fan).

1. Operation

A 24 V DC motor is used for each cooling fan.

a. Operation of FM1

During idling: Low speed rotation
During a copy operation: High speed rotation

b. Operation of FM2

During idling: Low speed rotation
During a copy operation: High speed rotation

c. Operation of FM3

During idling: Low speed rotation
During a copy operation: High speed rotation

d. Operation of FM5

During idling: Stop
During a copy operation: Constant rotation

2. Signals

a. Input signals

(1) FM1 LOCK (FM1 → SCDB)
FM1 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(2) FM2 LOCK (FM2 → SCDB)
FM2 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(3) FM3 LOCK (FM3 → PRDB)
FM3 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

(4) FM5 LOCK (FM5 → DCPS1)
FM5 status detection signal
[L]: Normal rotation
[H]: Stop or rotation abnormality

b. Output signals

(1) FM1 H/L (SCDB → FM1)
FM1 rotational speed switching signal
[L]: High speed
[H]: Low speed

(2) FM2 H/L (SCDB → FM2)
FM2 rotational speed switching signal
[L]: High speed
[H]: Low speed

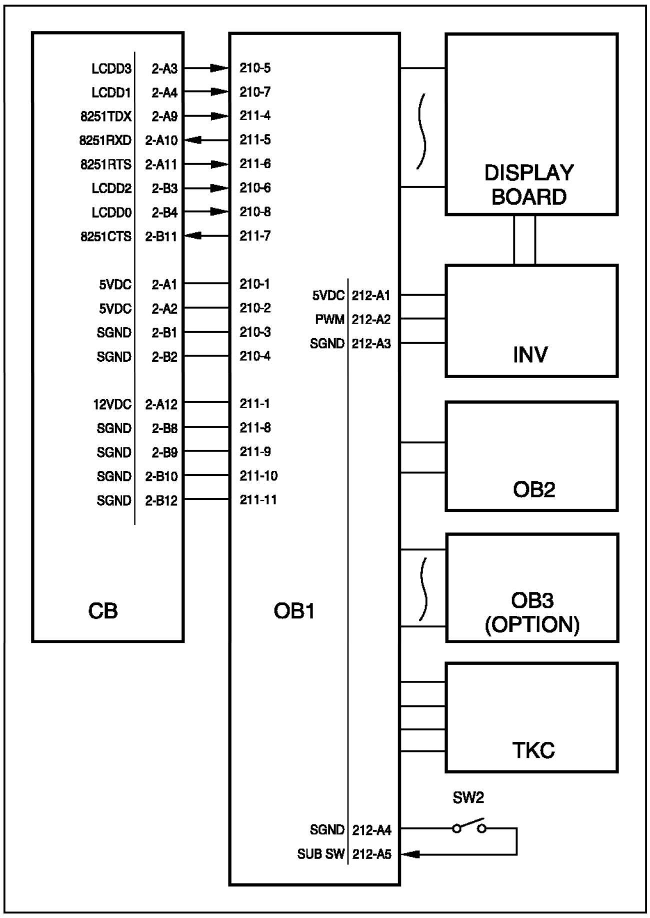
(3) FM3 DRIVE (PRDB → FM3)
FM3 drive control signal

(4) FM3 H/L (PRDB → FM3)
FM3 rotational speed switching signal
[L]: High speed
[H]: Low speed

(5) FM5 DRIVE (DCPS1 → FM5)
FM5 drive signal

(6) FM5 CONT (SCDB → DCPS1)
FM5 drive control signal
[L]: FM5 ON
[H]: FM5 OFF

[4] Operation Panel Control


LCDD3 2-A3 210-5
LCDD1 2-A4 210-7
8251TDX 2-A9 211-4
8251RXD 2-A10 211-5
8251RTS 2-A11 211-6
LCDD2 2-B3 210-6
LCDD0 2-B4 210-8
8251CTS 2-B11 211-7
5VDC 2-A1 210-1
5VDC 2-A2 210-2
SGND 2-B1 210-3
SGND 2-B2 210-4
12VDC 2-A12 211-1
SGND 2-B8 211-8
SGND 2-B9 211-9
SGND 2-B10 211-10
SGND 2-B12 211-11
5VDC 212-A1
PWM 212-A2
SGND 212-A3
SGND 212-A4
SUB SW 212-A5
SW2
CB
OB1
DISPLAY BOARD
INV
OB2
OB3 (OPTION)
TKC

The operation panel consists of OB1 (operation board 1), OB2 (operation board 2) and the display board. On the display board is mounted an LCD. The LCD has a backlight which is powered by the INV (inverter), and touch switches which are linked to the displayed contents.
Control of the operation panel is done by OB1 based on serial data output from CB (control board).

1. Operation

a. LED ON operation

The LEDs on OB1 are turned ON and OFF by the CPU in the OB1.
The CPU in the OB1 is turned ON and OFF according to serial data from the CB.

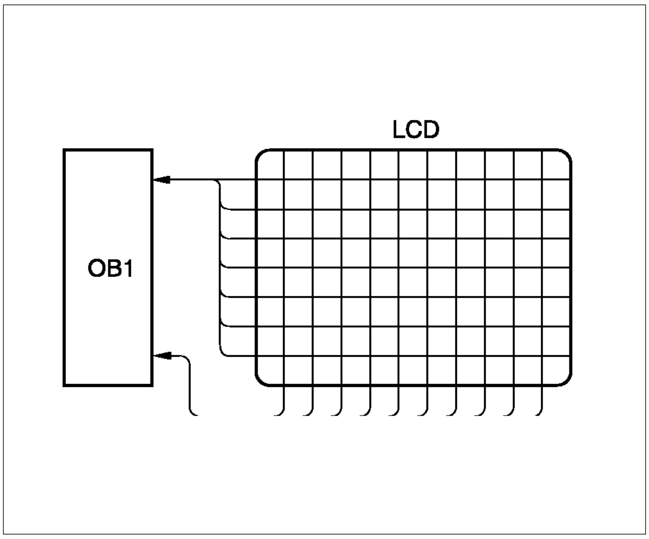
b. LCD control

(1) LCD display operation
The LCD is driven by 4-bit parallel data that is input from the CB via the OB1.

(2) Backlight ON operation
The LCD has a backlight (cold cathode tube) to facilitate viewing. The backlight is driven by the INV, and controlled by OB1.

(3) Touch switch control

The LCD has touch switches, enabling you to directly select items indicated by the display. These touch switches are controlled by OB1.



c. SW2 (sub power) control

If SW2 is turned ON while SW1 (main power) is ON, power is supplied to each load.

If SW1 is OFF, this switch does not function.

2. Signals

a. Input signals

(1) 8251 RXD (OB1 → CB)

32-bit serial data which informs CB of the operation status of OB1.

(2) 8251 CTS (OB1 → CB)

Signal which indicates that data is being sent from OB1 to CB.

When this signal is [H], CB stops sending the OB1 TXD signal.

(3) SUB SW (SW2 → OB1)

This signal becomes [L] when the SW2 is turned ON.

b. Output signals

(1) 8251 TXD (CB → OB1)

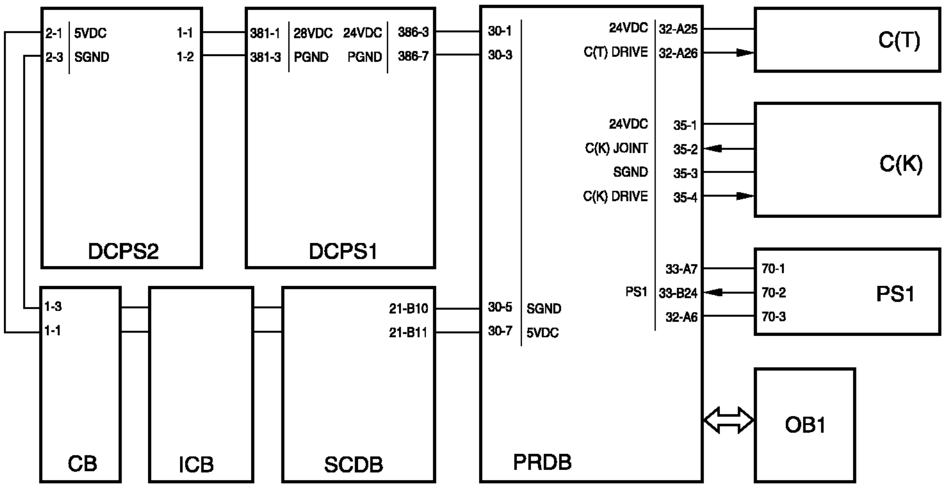
32-bit serial data which informs OB1 of the operation status of the machine that is known to CB.

(2) 8251 RTS (CB → OB1)

Signal which indicates that data is being sent from CB to OB1.

When this signal is [H], OB1 stops sending the OB1 RXD signal.

[5] Counter Control


DCPS2
2-1 5VDC 1-1
2-3 SGND 1-2
DCPS1
381-1 28VDC 24VDC 386-3
381-3 PGND PGND 386-7
PRDB
30-1
30-3
30-5 SGND
30-7 5VDC
24VDC 32-A25
C(T) DRIVE 32-A26
24VDC 35-1
C(K) JOINT 35-2
SGND 35-3
C(K) DRIVE 35-4
33-A7
PS1 33-B24
32-A6
C(T)
C(K)
PS1
70-1
70-2
70-3
OB1
CB
1-3
1-1
ICB
SCDB
21-B10
21-B11

This machine contains the following counters.
· C(T) (total counter)
· C(K) (key counter)
These counters are controlled by the CB (control board).
Related signal is PS1 (paper exit).

1. Operation

This machine counts copies by means of two software counters.

(1) Paper feed counter
The count increases by 1 each time the 1st paper feed goes ON.

(2) Paper exit counter

The count increases by 1 each time PS1 goes ON/OFF.

<Operation of each counter>

a) Copy quantity display counter on OB

Normal	Paper jam
Indicates the count on the paper feed counter.	Indicates the count on the paper exit counter.

2. Signals

a. Input signals

(1) C(K) JOINT (C(K) → CB)
This signal informs the CB that the count on C(K) has increased.

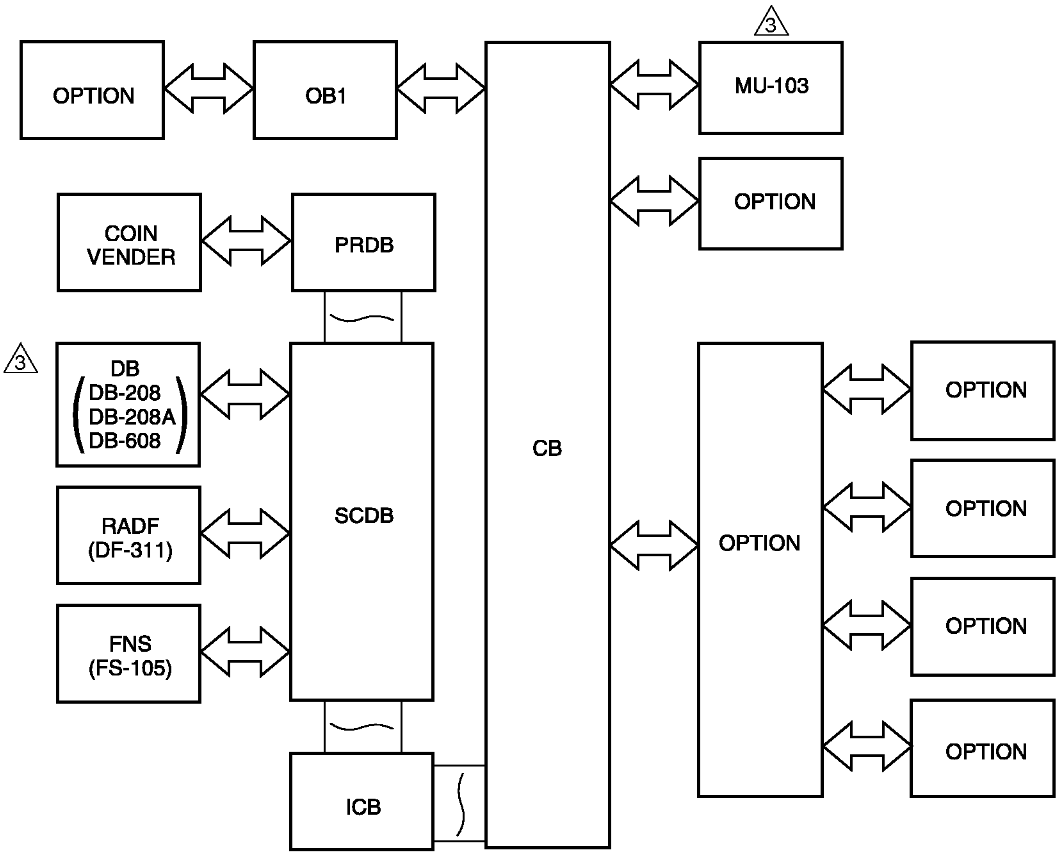
(2) PS1 (PS1 → CB)
PS1 state signal.
When this signal is [H], PS1 goes ON, indicating that the paper has been exited.

b. Output signals

(1) C(T) DRIVE (CB → C(T))
C(T) drive signal.
When this signal changes from [L] → [H], the count of C(T) increases by 1.

(2) C(K) DRIVE (CB → C(K))
C(K) drive signal
When this signal changes from [L] → [H], the count of C(K) increases by 1.

[6] Option Control


OPTION
OB1
CB
3
MU-103
OPTION
COIN VENDER
PRDB
3
DB
DB-208
DB-208A
DB-608
SCDB
RADF
(DF-311)
FNS
(FS-105)
ICB
OPTION
OPTION
OPTION
OPTION
OPTION

In this machine, all options (except for coin vender) are controlled by the CB (control board) and ICB (image control board).

1. Operation

RADF, FNS and DB contain a CB (control board). Data is exchanged between each CB and the main body ICB.
Coin vender is controlled by the PRDB (printer drive board).
(For details of the operation of each option, refer to the Option section of this manual.)

<Operation/output timing of coin vender signal>

CN No.	Pin No.	Signal name	Description	Output timing	Kind of signal
35	1	DC24V	Key counter power source	Always	24 V, 300 mA
	2	C(K) SIG	Key counter connection recognition	—	—
	3	C(K) GDN	Signal ground	—	—
	4	C(K) DRIVE	Key counter signal count up	100 ms L signal that is output after the copy is exited.	—
	5	P.GDN	Power ground	—	—
36	1	Vender Copy	"Copy in progress" signal	Output from when the Start button is pressed until the copy is exited.	Open collector 5 V, 200 mA
	2	Vender FEED	Paper feed signal	100 ms L signal that is synchronized with the main body tray/DB	Open collector 5 V, 200 mA
	3	Paper size 0 to 3	Paper size signal	Output only while a copy is being made.	Open collector 5 V, 200 mA
	4				
	5				
	6				
	7	Vender two-sided copy	Two-sided copy select signal	Signal output only when duplex copy mode is selected.	Open collector 5 V, 200 mA
	8	N.C.	Spare terminal	—	—
	9	N.C.	Spare terminal	—	—
	10	P.GND	Power ground	—	—

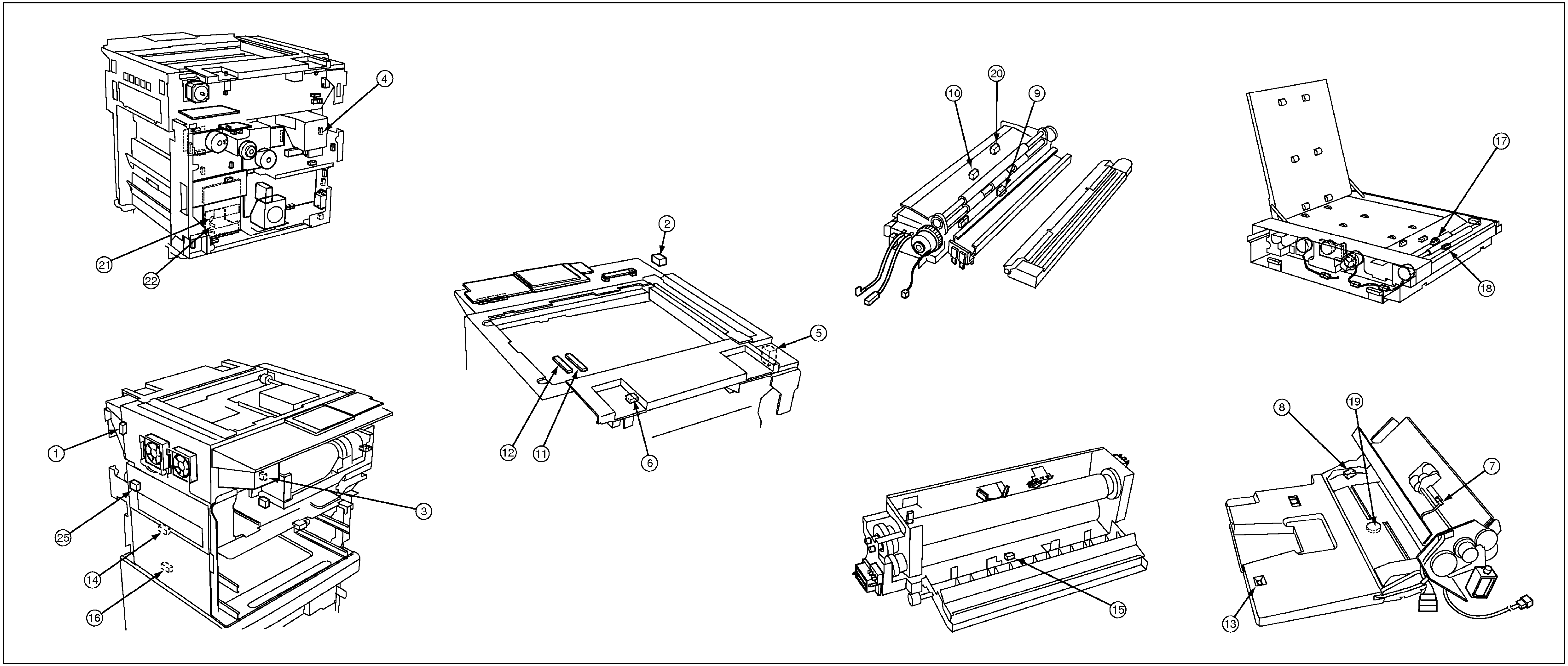
4

DIAGRAMS

4. DIAGRAMS

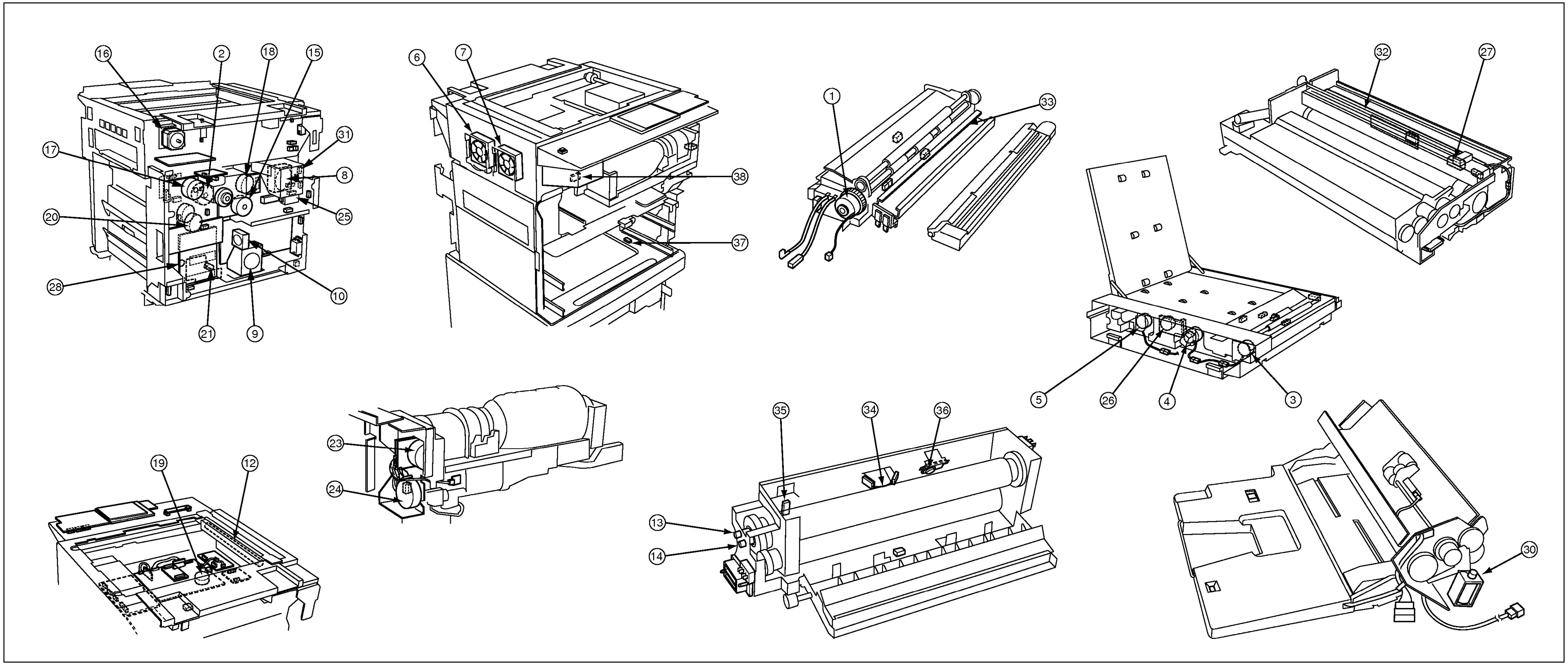
7040 ELECTRICAL PARTS LAYOUT DRAWING.. 4-1
7040 CONNECTOR LAYOUT DRAWING 4-4
△3 7040 OVERALL WIRING DIAGRAM 4-7
JAM LIST 4-13
  [1] Paper Jam 4-13
  [2] Abnormality 4-18
  [3] Faulty unit separation (Fail safe)........ 4-24
7040 TIMING CHART (A4, LIFE SIZE, TWO COPIES,TRAY PAPER FEED) 4-58
7040 TIMING CHART (A4, LIFE SIZE, TWO COPIES, DB MIDDLE TRAY PAPER FEED) 4-59
7040 TIMING CHART (DF ORIGINAL, A4, LIFE SIZE, TWO COPIES, TRAY PAPER FEED) 4-60
ADU TIMING CHART (A4, LIFE SIZE, THREE COPIES) 4-61

7040 ELECTRICAL PARTS LAYOUT DRAWING



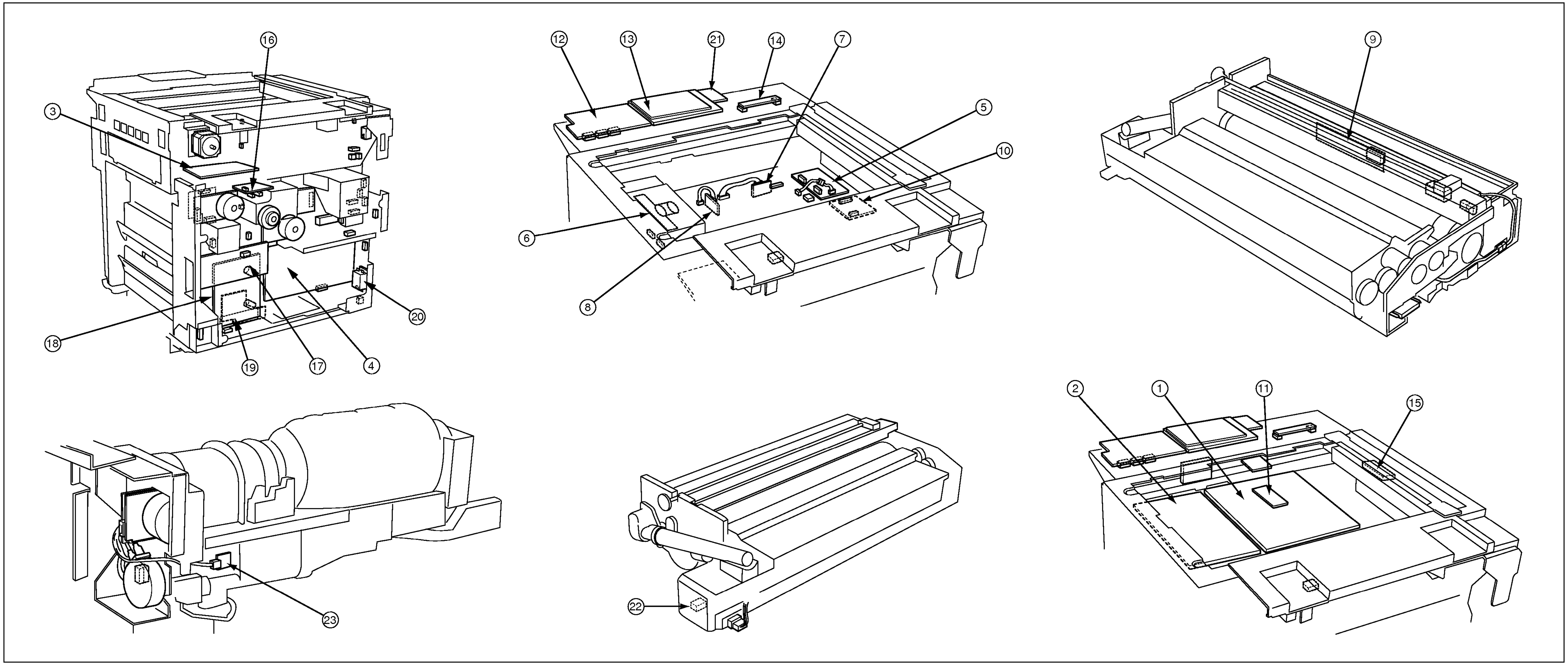
1. Switches and Sensors

①	SW1	Main power switch
②	SW2	Sub power switch
③	MS1	Inter lock MS1
④	PS1	Paper exit sensor
⑤	PS3	Optics home position sensor
⑥	PS4	APS timing sensor
⑦	PS13	By-pass no paper detect sensor
⑧	PS14	Open/Close detect sensor
⑨	PS16	Registration sensor
⑩	PS17	No feed sensor
⑪	PS25	APS sensor 1
⑫	PS26	APS sensor 2
⑬	PS27	By-pass tray paper size detect sensor
⑭	PS28	Reversal detect sensor 1
⑮	PS29	Fixing exit sensor
⑯	PS30	Reversal detect sensor 2
⑰	PS501	ADU no feed sensor
⑱	PS502	ADU regist. sensor
⑲	VR1	By-pass tray paper size VR
⑳	HUM1	Humidity sensor
㉑	PS31	No paper detect sensor (lower)
㉒	PS32	Upper limit detect sensor (lower)
㉓	–	–
㉔	–	–
㉕	MS2	Inter lock MS2



2. Loads

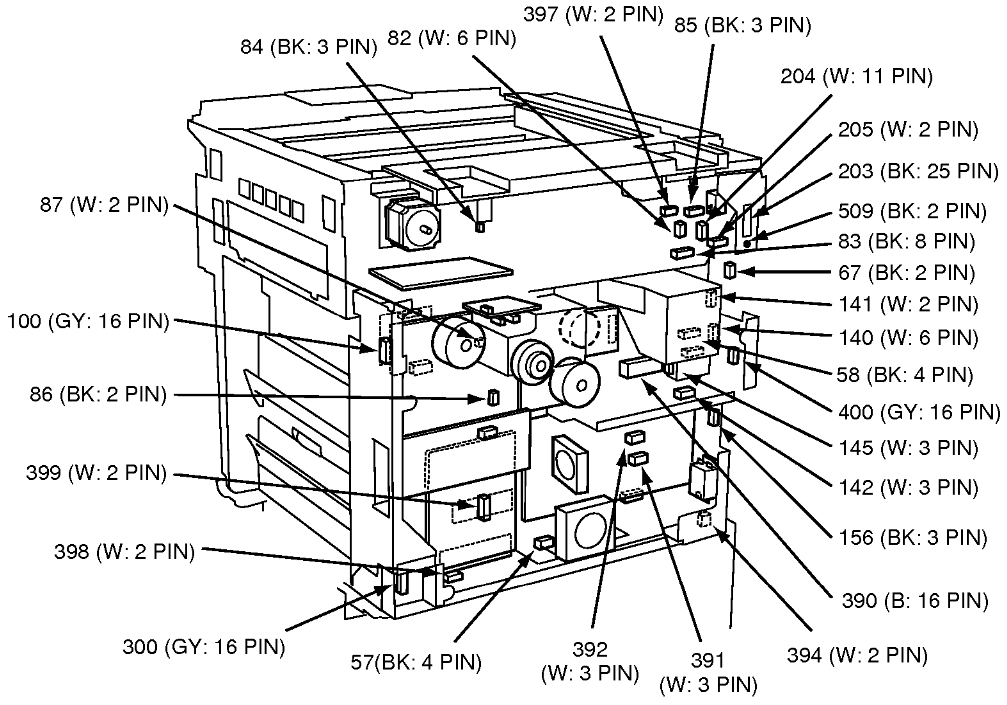
①	MC1	Registration magnet clutch
②	MC2	Developing magnet clutch
③	MC501	ADU paper feed restart magnet clutch
④	MC502	ADU loop magnet clutch
⑤	MC503	ADU paper feed magnet clutch
⑥	FM1	Scanner cooling fan motor 1
⑦	FM2	Scanner cooling fan motor 2
⑧	FM3	Main body cooling fan motor
⑨	FM4	Conveyance suction fan motor
⑩	FM5	DCPS cooling fan motor
⑪	–	–
⑫	L1	Exposure lamp
⑬	L2	Fixing heater lamp 1
⑭	L3	Fixing heater lamp 2
⑮	M1	Main motor
⑯	M2	Scanner drive motor
⑰	M3	Developing drive motor
⑱	M4	Drum motor
⑲	M5	Polygon motor
⑳	M6	1st paper feed motor
㉑	M8	Tray motor (lower)
㉒	–	–
㉓	M10	Toner supply motor 1
㉔	M11	Toner supply motor 2
㉕	M12	Reversal paper exit motor
㉖	M501	ADU paper feed motor
㉗	SD1	Separation claw solenoid
㉘	SD2	1st paper feed solenoid (lower)
㉙	–	–
㉚	SD4	By-pass paper feed solenoid
㉛	SD5	Gate solenoid
㉜	PCL	Pre-charging lamp
㉝	TSL	Transfer synchronization lamp
㉞	TH1	Fixing temperature sensor 1
㉟	TH2	Fixing temperature sensor 2
㊱	TS	Thermostat
㊲	PTC	PTC heater
㊳	C(T)	Total counter

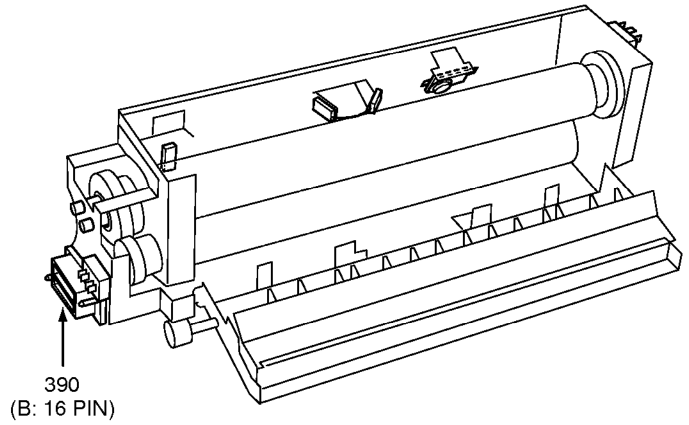


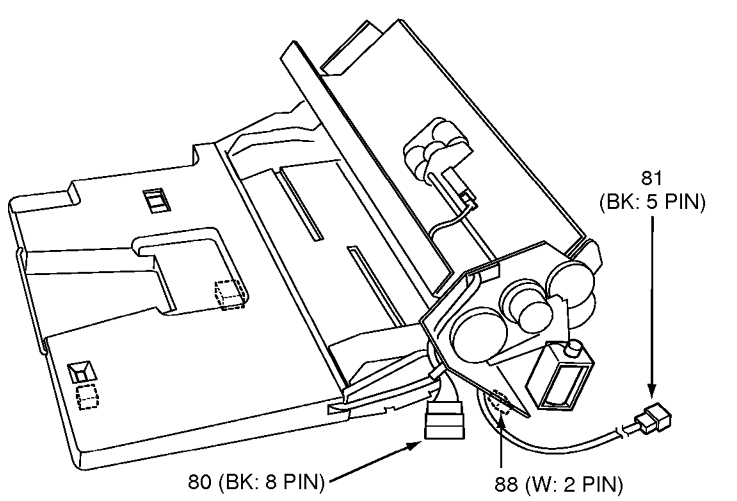
3. PCBs and Others

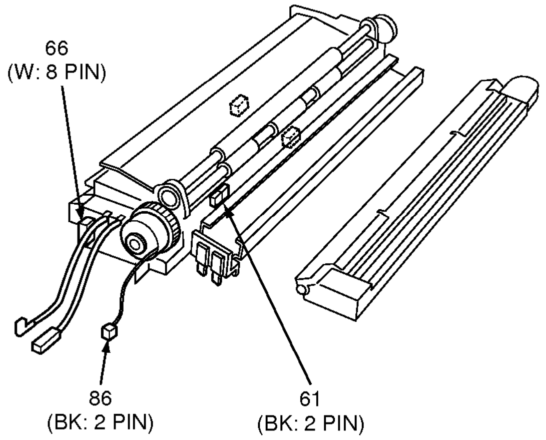
①	CB	Control board
②	ICB	Image control board
③	SCDB	Scanner drive board
④	DCPS1	DC power supply unit 1
⑤	DCPS2	DC power supply unit 2
⑥	CCD	CCD sensor board
⑦	LDB	Laser diode board
⑧	INDEX	Index sensor board
⑨	TCSB	Toner control sensor board
⑩	PMDB	Polygon motor drive board
⑪	PRMB	Parameter memory board
⑫	OB1	Operation board 1
⑬	LCD	Display board
⑭	INV	Inverter
⑮	INVB	Inverter board
⑯	HV1	High voltage unit 1
⑰	HV2	High voltage unit 2
⑱	PRDB	Printer drive board
⑲	PFDB (lower)	Paper feed detect board (lower)
⑳	LBR	Leak breaker
㉑	OB2	Operation board 2
㉒	TDS	Toner density sensor
㉓	TLD	Toner level detector

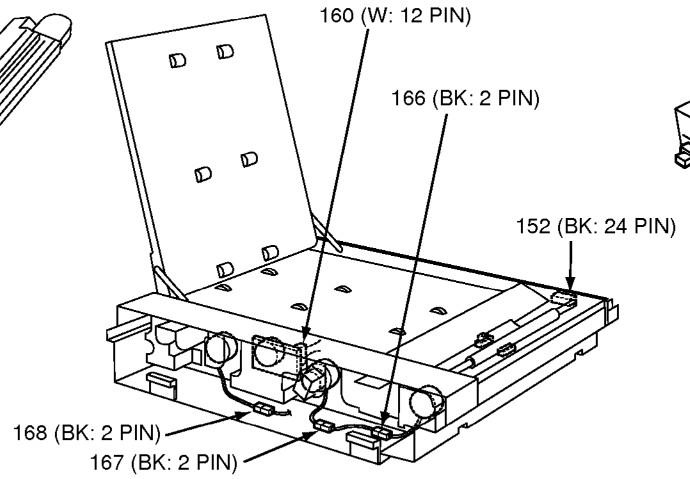
7040 CONNECTOR LAYOUT DRAWING

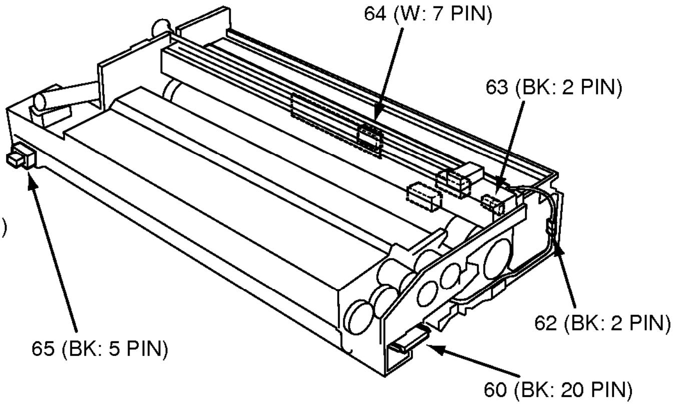

84 (BK: 3 PIN)
82 (W: 6 PIN)
397 (W: 2 PIN)
85 (BK: 3 PIN)
204 (W: 11 PIN)
205 (W: 2 PIN)
203 (BK: 25 PIN)
87 (W: 2 PIN)
509 (BK: 2 PIN)
83 (BK: 8 PIN)
67 (BK: 2 PIN)
141 (W: 2 PIN)
100 (GY: 16 PIN)
140 (W: 6 PIN)
58 (BK: 4 PIN)
86 (BK: 2 PIN)
400 (GY: 16 PIN)
145 (W: 3 PIN)
399 (W: 2 PIN)
142 (W: 3 PIN)
156 (BK: 3 PIN)
398 (W: 2 PIN)
390 (B: 16 PIN)
300 (GY: 16 PIN)
57(BK: 4 PIN)
392
(W: 3 PIN)
391
(W: 3 PIN)
394 (W: 2 PIN)

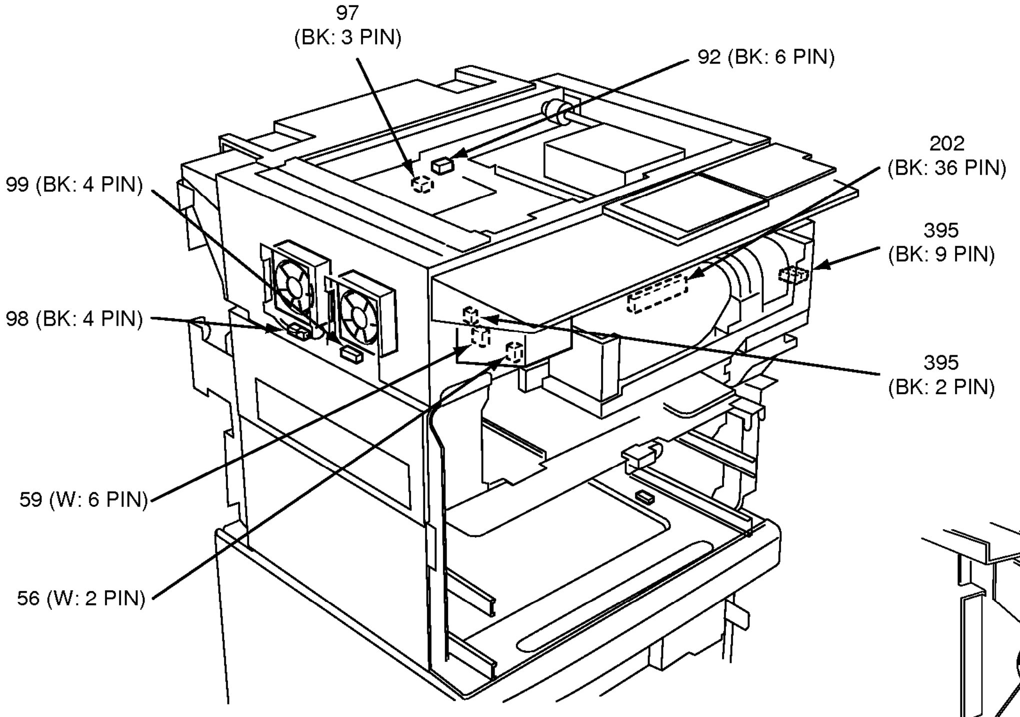


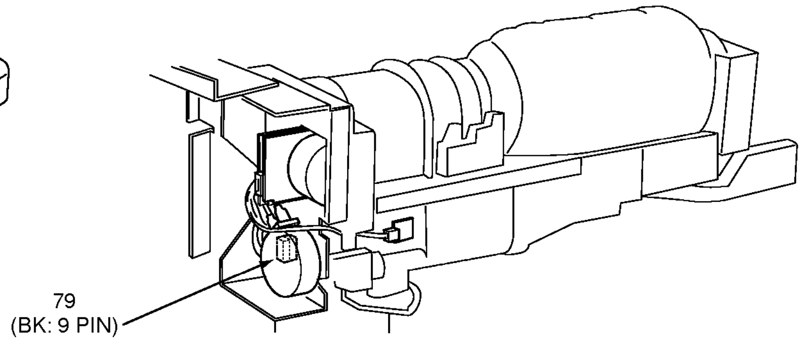

81
(BK: 5 PIN)
80 (BK: 8 PIN)
88 (W: 2 PIN)

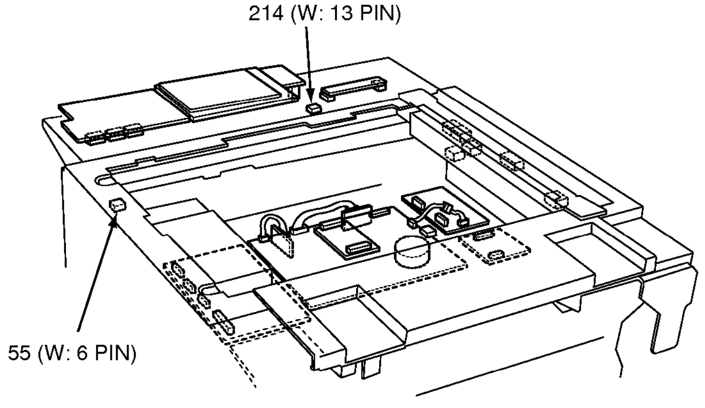

66
(W: 8 PIN)
86
(BK: 2 PIN)
61
(BK: 2 PIN)


160 (W: 12 PIN)
166 (BK: 2 PIN)
152 (BK: 24 PIN)
168 (BK: 2 PIN)
167 (BK: 2 PIN)


64 (W: 7 PIN)
63 (BK: 2 PIN)
62 (BK: 2 PIN)
65 (BK: 5 PIN)
60 (BK: 20 PIN)


97
(BK: 3 PIN)
92 (BK: 6 PIN)
202
(BK: 36 PIN)
99 (BK: 4 PIN)
395
(BK: 9 PIN)
98 (BK: 4 PIN)
395
(BK: 2 PIN)
59 (W: 6 PIN)
56 (W: 2 PIN)




214 (W: 13 PIN)
55 (W: 6 PIN)

[How to read connector numbers]

1. Inscribed contents

Connector No.

100
(W: 3 PIN)

Number of pins

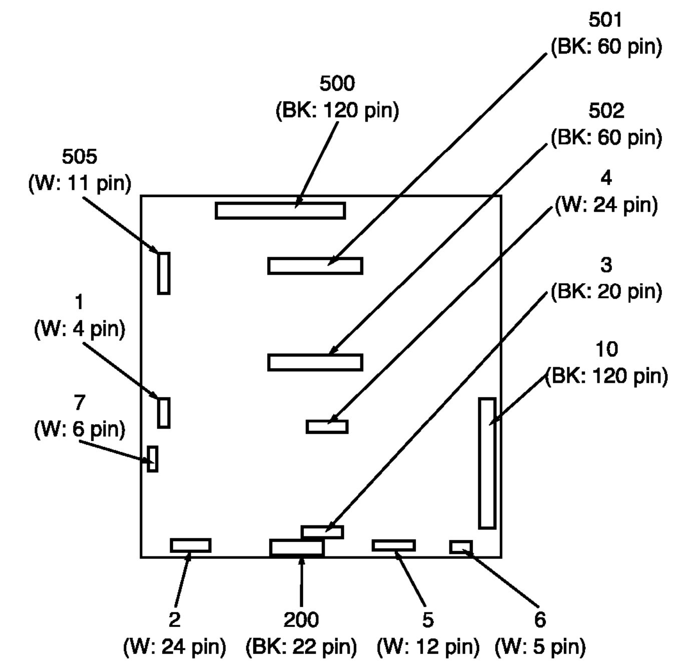
Connector color

2. Color code

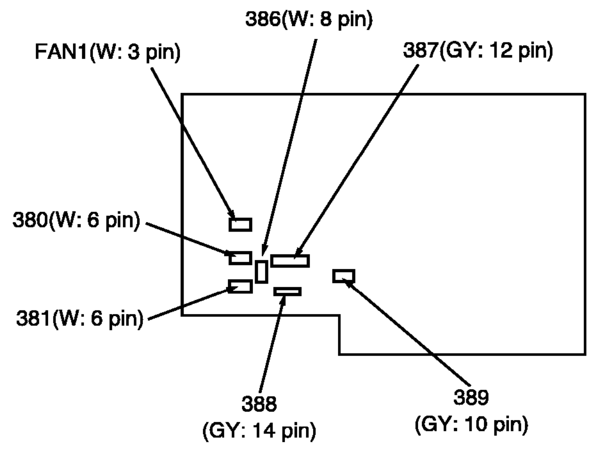
BN: Brown
R: Red
O: Orange
Y: Yellow
GN: Green
LB: Light blue
S: Silver
B: Blue
V: Violet
GY: Gray
W: White
BK: Black
P: Pink

As an example, (B/W) indicates that the male side of the connector is blue and the female side white.

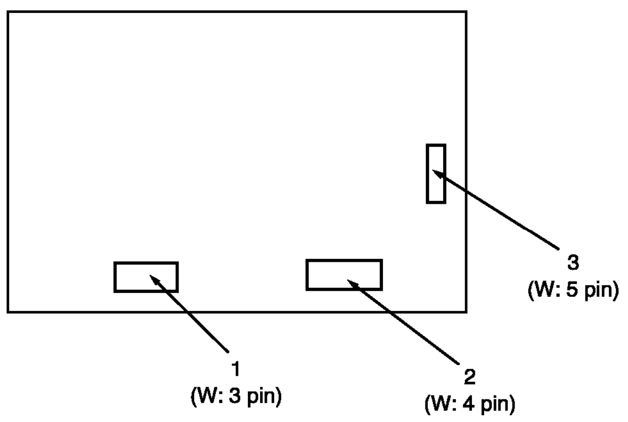
Control Board


501
(BK: 60 pin)
500
(BK: 120 pin)
502
(BK: 60 pin)
505
(W: 11 pin)
4
(W: 24 pin)
3
(BK: 20 pin)
1
(W: 4 pin)
10
(BK: 120 pin)
7
(W: 6 pin)
2
(W: 24 pin)
200
(BK: 22 pin)
5
(W: 12 pin)
6
(W: 5 pin)

DC power supply unit 1


386(W: 8 pin)
FAN1(W: 3 pin)
387(GY: 12 pin)
380(W: 6 pin)
381(W: 6 pin)
388
(GY: 14 pin)
389
(GY: 10 pin)

DC power supply unit 2


3
(W: 5 pin)
1
(W: 3 pin)
2
(W: 4 pin)

Polygon motor drive board

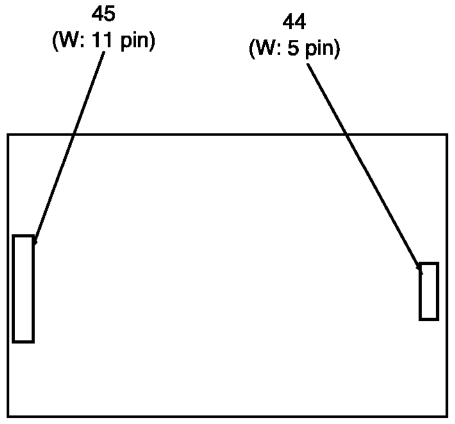
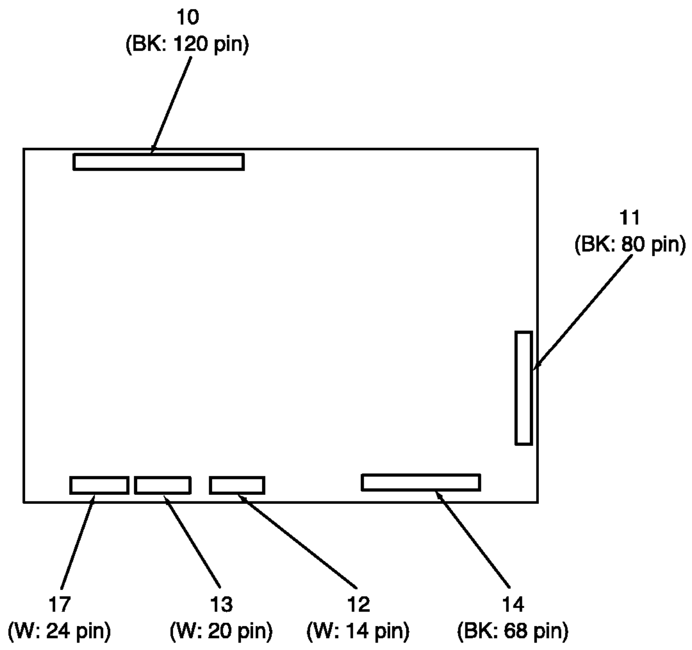
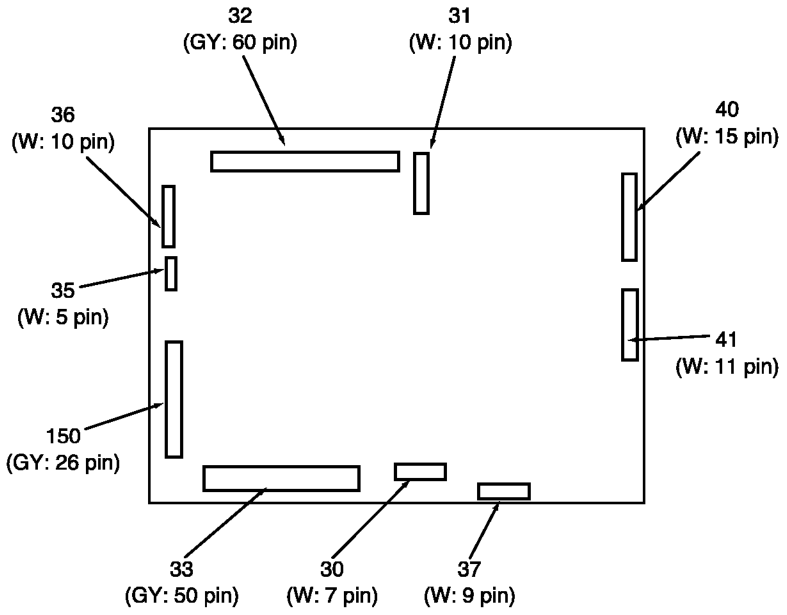

45
(W: 11 pin)
44
(W: 5 pin)

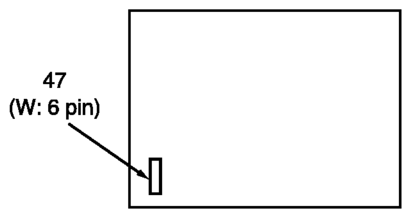
Image control board


10
(BK: 120 pin)
11
(BK: 80 pin)
17
(W: 24 pin)
13
(W: 20 pin)
12
(W: 14 pin)
14
(BK: 68 pin)

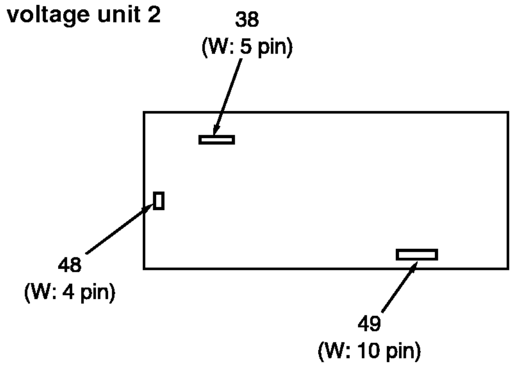
Printer drive board


32
(GY: 60 pin)
31
(W: 10 pin)
36
(W: 10 pin)
40
(W: 15 pin)
35
(W: 5 pin)
41
(W: 11 pin)
150
(GY: 26 pin)
33
(GY: 50 pin)
30
(W: 7 pin)
37
(W: 9 pin)

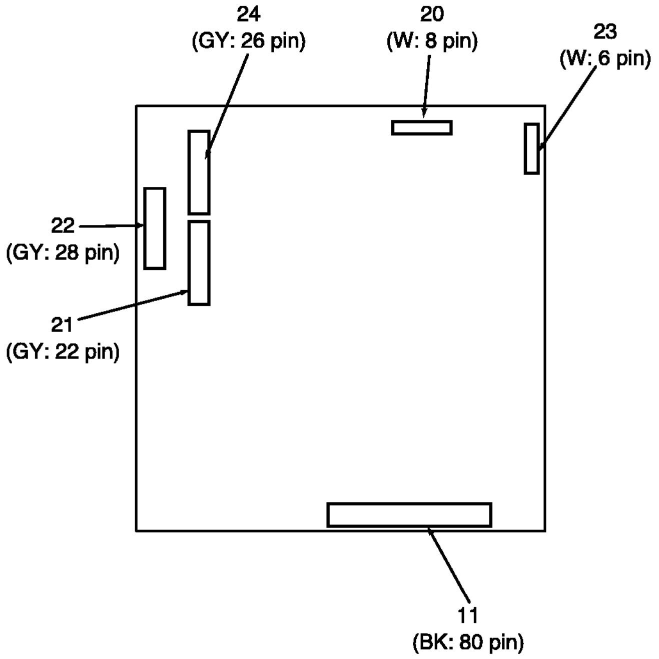
High voltage unit 1



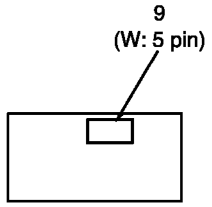
High voltage unit 2


38
(W: 5 pin)
48
(W: 4 pin)
49
(W: 10 pin)

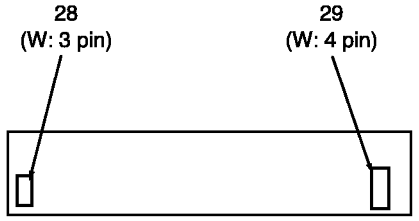
Scanner drive board


24
(GY: 26 pin)
20
(W: 8 pin)
23
(W: 6 pin)
22
(GY: 28 pin)
21
(GY: 22 pin)
11
(BK: 80 pin)

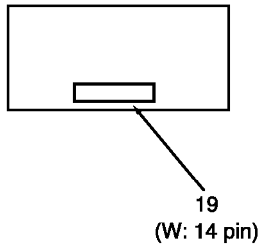
Index sensor board



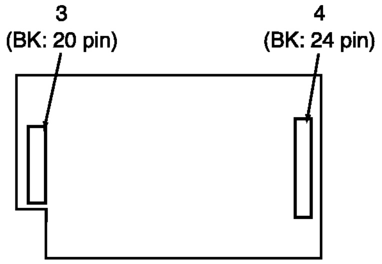
Inverter board


28
(W: 3 pin)
29
(W: 4 pin)

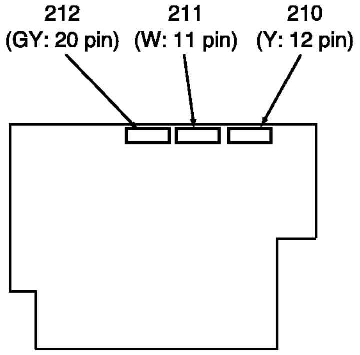
CCD sensor board



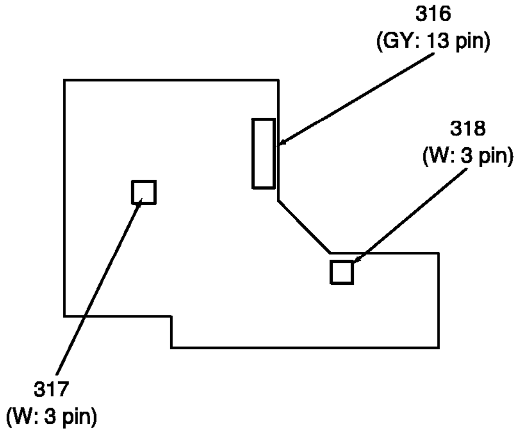
Parameter memory board


3
(BK: 20 pin)
4
(BK: 24 pin)

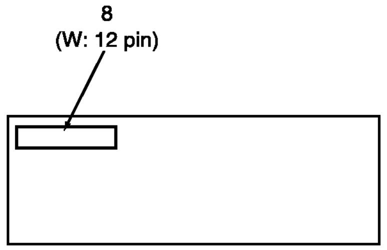
Operation board 1


212
(GY: 20 pin)
211
(W: 11 pin)
210
(Y: 12 pin)

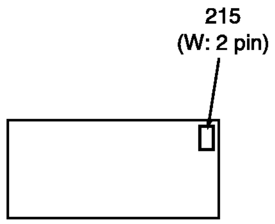
Paper feed detect board


316
(GY: 13 pin)
318
(W: 3 pin)
317
(W: 3 pin)

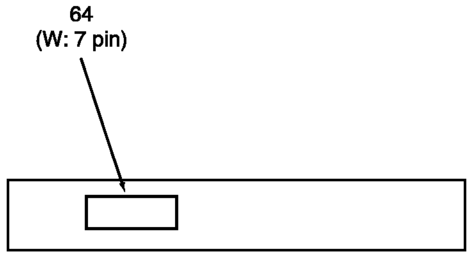
Laser diode board



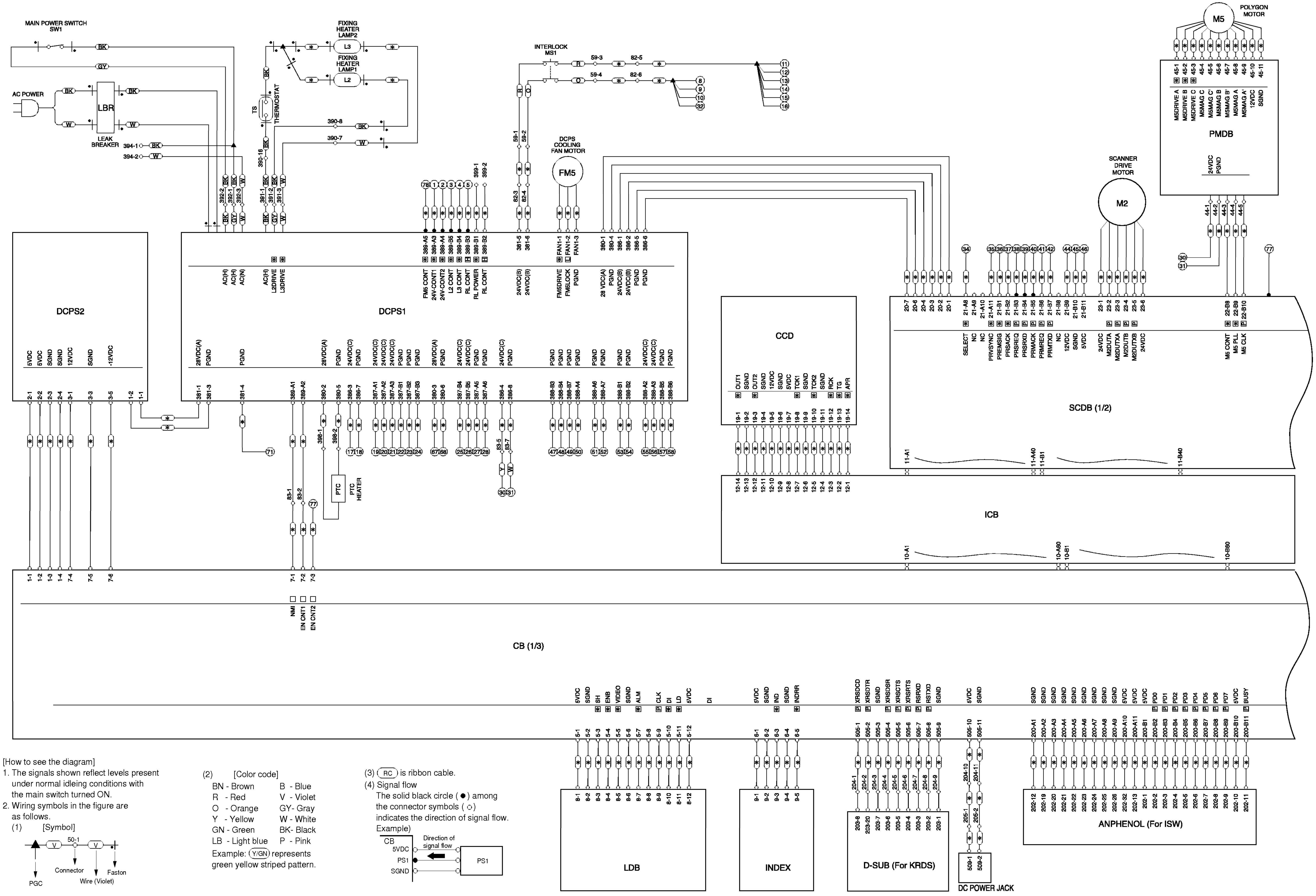
Operation board 2



Toner control sensor board



7040 OVERALL WIRING DIAGRAM (1/5)


MAIN POWER SWITCH SW1
AC POWER
LBR
LEAK BREAKER
FIXING HEATER LAMP2
L3
FIXING HEATER LAMP1
L2
TS
THERMOSTAT
INTERLOCK MS1
DCPS COOLING FAN MOTOR
FM5
SCANNER DRIVE MOTOR
M2
POLYGON MOTOR
M5
PMDB
DCPS2
DCPS1
CCD
SCDB (1/2)
ICB
CB (1/3)
PTC
PTC HEATER
LDB
INDEX
D-SUB (For KRDS)
DC POWER JACK
ANPHENOL (For ISW)
5VDC
SGND
12VDC
-12VDC
28VDC(A)
PGND
24VDC(C)
24VDC(B)
AC(H)
AC(N)
L2DRIVE
L3DRIVE
FM5 CONT
24V-CONT1
24V-CONT2
L2 CONT
L3 CONT
RL CONT
RL POWER
FM5DRIVE
FM5LOCK
SELECT
NC
PRVSYNC
PREMSIG
PRSACK
PRSREQ
PRSRXD
PRMACK
PRMREQ
PRMTXD
M2DUTA
M2DUTXA
M2DUTB
M2DUTXB
24VDC
M5 CONT
M5 PLL
M5 CLK
M5DRIVE A
M5DRIVE B
M5DRIVE C
M5MAG C'
M5MAG B'
M5MAG A'
M5MAG C
M5MAG B
M5MAG A
OUT1
OUT2
TCK1
TCK2
RCK
TG
APR
NMI
EN CNT1
EN CNT2
SH
ENB
VIDEO
ALM
CLK
DI
LD
IND
INDRR
XRSDCD
XRSDTR
XRSDSR
XRSCTS
XRSRTS
RSRXD
RSTXD
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
BUSY

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]

50-1
V
PGC
Connector
Wire (Violet)
Faston

(2) [Color code]

BN - Brown	B - Blue
R - Red	V - Violet
O - Orange	GY- Gray
Y - Yellow	W - White
GN - Green	BK- Black
LB - Light blue	P - Pink

Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

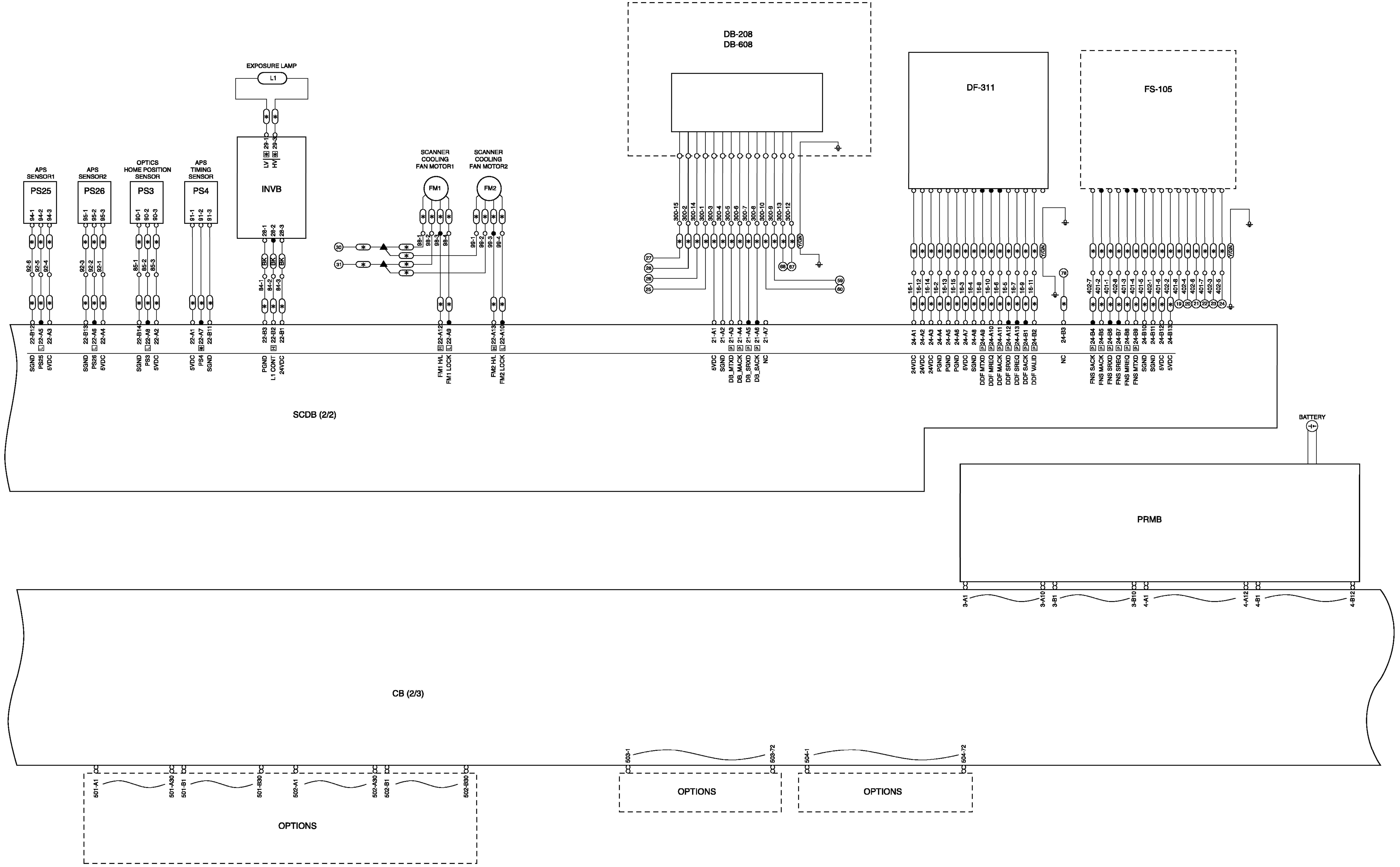
(4) Signal flow

The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.

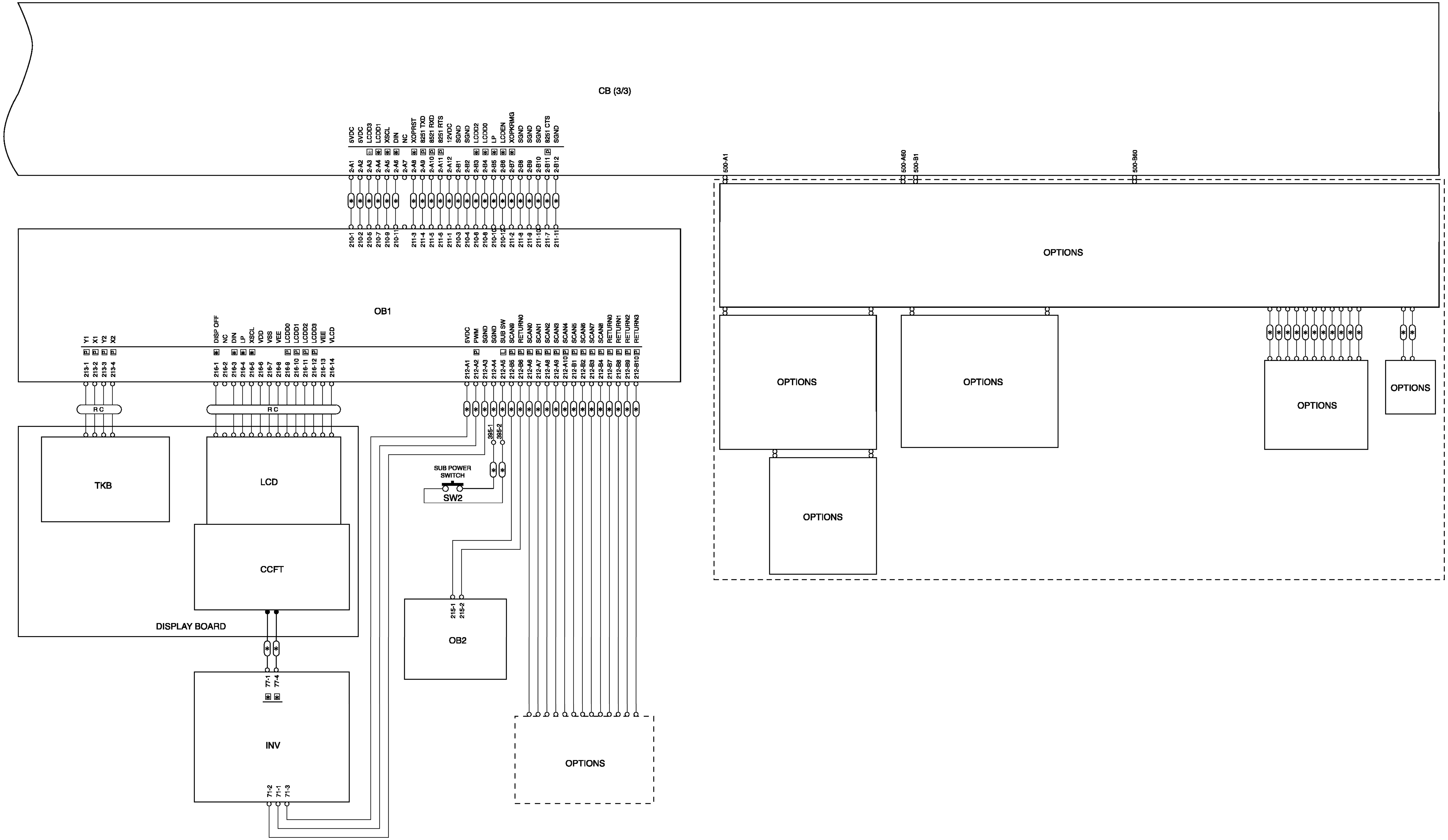
Example)

CB
5VDC
PS1
SGND
Direction of signal flow
PS1

7040 OVERALL WIRING DIAGRAM (2/5)

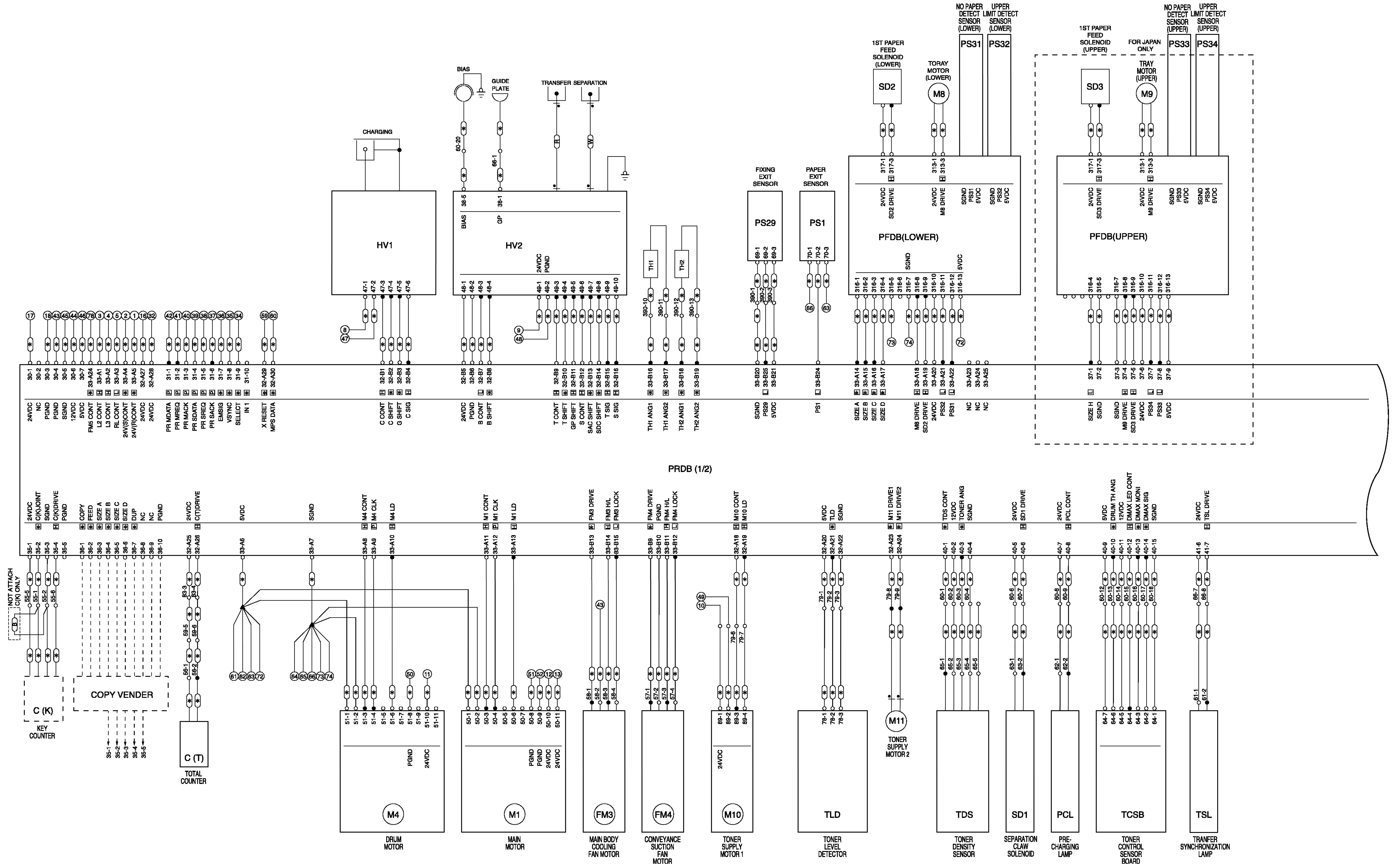

DB-208
DB-608
DF-311
FS-105
EXPOSURE LAMP
L1
APS SENSOR1
PS25
APS SENSOR2
PS26
OPTICS HOME POSITION SENSOR
PS3
APS TIMING SENSOR
PS4
INVB
LV
HV
SCANNER COOLING FAN MOTOR1
FM1
SCANNER COOLING FAN MOTOR2
FM2
SGND
PS25
5VDC
PS26
PS3
PS4
PGND
L1 CONT
24VDC
FM1 H/L
FM1 LOCK
FM2 H/L
FM2 LOCK
DB_MTXD
DB_MACK
DB_SRXD
DB_SACK
NC
PGND
DDF MTXD
DDF MREQ
DDF MACK
DDF SRXD
DDF SREQ
DDF SACK
DDF VALID
FNS SACK
FNS MACK
FNS SRXD
FNS SREQ
FNS MREQ
FNS MTXD
SCDB (2/2)
BATTERY
PRMB
CB (2/3)
OPTIONS
OPTIONS
OPTIONS
3-A1
3-A10
3-B1
3-B10
4-A1
4-A12
4-B1
4-B12
501-A1
501-A30
501-B1
501-B30
502-A1
502-A30
502-B1
502-B30
503-1
503-72
504-1
504-72

7040 OVERALL WIRING DIAGRAM (3/5)

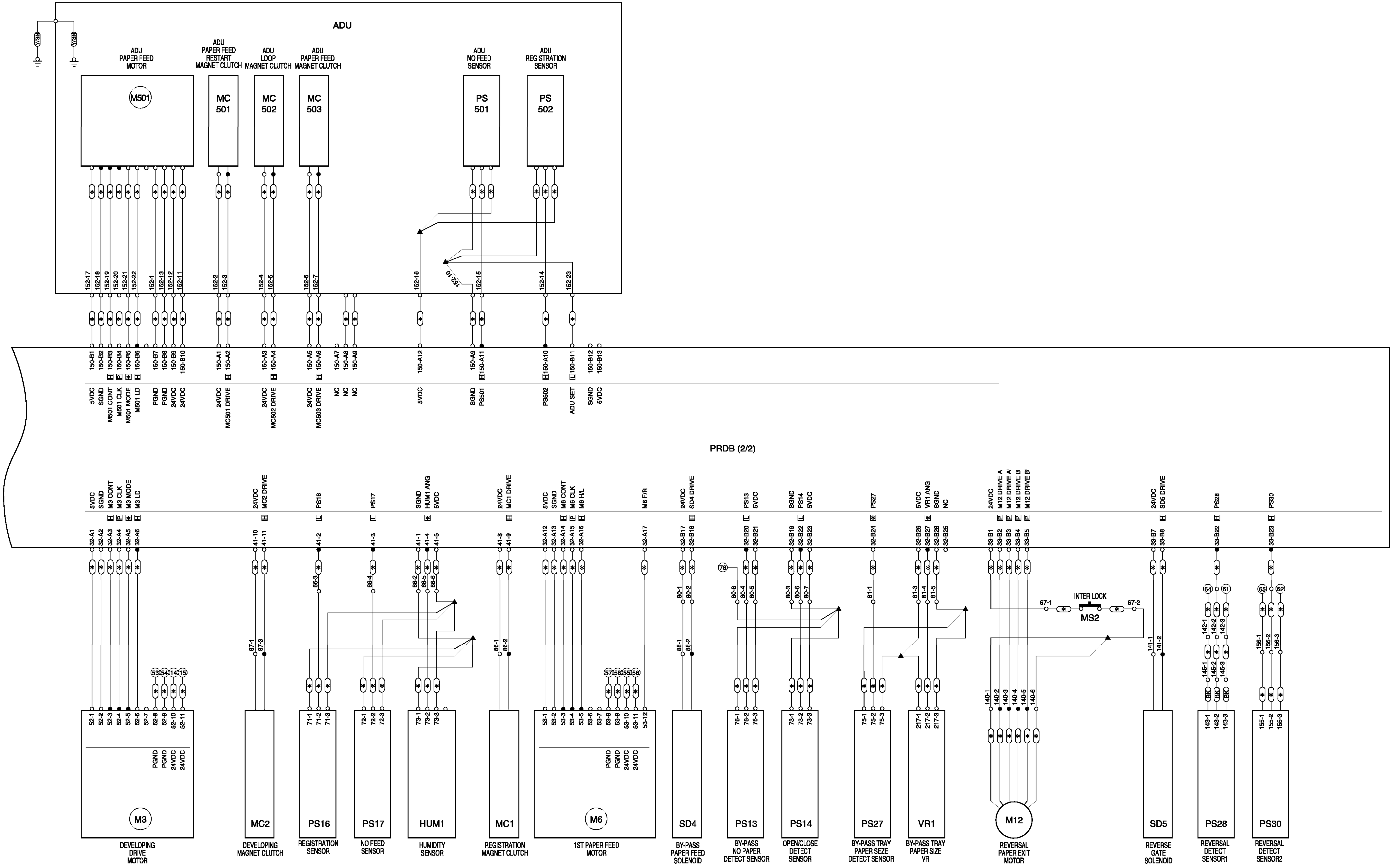


CB (3/3)
5VDC
5VDC
LCDD3
LCDD1
XSCL
DIN
NC
XOPRST
8251 TXD
8521 RXD
8251 RTS
12VDC
SGND
SGND
LCDD2
LCDD0
LP
LCDEN
XOPKRMG
SGND
SGND
SGND
8251 CTS
SGND
2-A1
2-A2
2-A3
2-A4
2-A5
2-A6
2-A7
2-A8
2-A9
2-A10
2-A11
2-A12
2-B1
2-B2
2-B3
2-B4
2-B5
2-B6
2-B7
2-B8
2-B9
2-B10
2-B11
2-B12
210-1
210-2
210-5
210-7
210-9
210-11
211-3
211-4
211-5
211-6
211-1
210-3
210-4
210-6
210-8
210-10
210-12
211-2
211-8
211-9
211-10
211-7
211-11
500-A1
500-A60
500-B1
500-B60
OB1
Y1
X1
Y2
X2
213-1
213-2
213-3
213-4
DISP OFF
NC
DIN
LP
XSCL
VDD
VSS
VEE
LCDD0
LCDD1
LCDD2
LCDD3
VEE
VLCD
216-1
216-2
216-3
216-4
216-5
216-6
216-7
216-8
216-9
216-10
216-11
216-12
216-13
216-14
5VDC
PWM
SGND
SGND
SUB SW
SCAN9
RETURN0
SCAN0
SCAN1
SCAN2
SCAN3
SCAN4
SCAN5
SCAN6
SCAN7
SCAN8
RETURN0
RETURN1
RETURN2
RETURN3
212-A1
212-A2
212-A3
212-A4
212-A5
212-B5
212-B6
212-A6
212-A7
212-A8
212-A9
212-A10
212-B1
212-B2
212-B3
212-B4
212-B7
212-B8
212-B9
212-B10
RC
RC
TKB
LCD
CCFT
DISPLAY BOARD
395-1
395-2
SUB POWER SWITCH
SW2
215-1
215-2
OB2
77-1
77-4
INV
71-2
71-1
71-3
OPTIONS
OPTIONS
OPTIONS
OPTIONS
OPTIONS
OPTIONS
OPTIONS

7040 OVERALL WIRING DIAGRAM (4/5)


CHARGING
HV1
BIAS
GUIDE PLATE
TRANSFER
SEPARATION
HV2
TH1
TH2
FIXING EXIT SENSOR
PS29
PAPER EXIT SENSOR
PS1
1ST PAPER FEED SOLENOID (LOWER)
SD2
TORAY MOTOR (LOWER)
M8
NO PAPER DETECT SENSOR (LOWER)
PS31
UPPER LIMIT DETECT SENSOR (LOWER)
PS32
PFDB(LOWER)
1ST PAPER FEED SOLENOID (UPPER)
SD3
FOR JAPAN ONLY
TRAY MOTOR (UPPER)
M9
NO PAPER DETECT SENSOR (UPPER)
PS33
UPPER LIMIT DETECT SENSOR (UPPER)
PS34
PFDB(UPPER)
PRDB (1/2)
NOT ATTACH C(K) ONLY
C (K)
KEY COUNTER
COPY VENDER
C (T)
TOTAL COUNTER
M4
DRUM MOTOR
M1
MAIN MOTOR
FM3
MAIN BODY COOLING FAN MOTOR
FM4
CONVEYANCE SUCTION FAN MOTOR
M10
TONER SUPPLY MOTOR 1
TLD
TONER LEVEL DETECTOR
M11
TONER SUPPLY MOTOR 2
TDS
TONER DENSITY SENSOR
SD1
SEPARATION CLAW SOLENOID
PCL
PRE-CHARGING LAMP
TCSB
TONER CONTROL SENSOR BOARD
TSL
TRANFER SYNCHRONIZATION LAMP

7040 OVERALL WIRING DIAGRAM (5/5)


ADU
ADU PAPER FEED MOTOR
M501
ADU PAPER FEED RESTART MAGNET CLUTCH
MC 501
ADU LOOP MAGNET CLUTCH
MC 502
ADU PAPER FEED MAGNET CLUTCH
MC 503
ADU NO FEED SENSOR
PS 501
ADU REGISTRATION SENSOR
PS 502
Y/GN
PRDB (2/2)
5VDC
SGND
M501 CONT
M501 CLK
M501 MODE
M501 LD
PGND
24VDC
MC501 DRIVE
MC502 DRIVE
MC503 DRIVE
NC
PS501
PS502
ADU SET
M3 CONT
M3 CLK
M3 MODE
M3 LD
MC2 DRIVE
PS16
PS17
HUM1 ANG
MC1 DRIVE
M6 CONT
M6 CLK
M6 H/L
M6 F/R
SD4 DRIVE
PS13
PS14
PS27
VR1 ANG
M12 DRIVE A
M12 DRIVE A'
M12 DRIVE B
M12 DRIVE B'
SD5 DRIVE
PS28
PS30
INTER LOCK
MS2
M3
DEVELOPING DRIVE MOTOR
MC2
DEVELOPING MAGNET CLUTCH
PS16
REGISTRATION SENSOR
PS17
NO FEED SENSOR
HUM1
HUMIDITY SENSOR
MC1
REGISTRATION MAGNET CLUTCH
M6
1ST PAPER FEED MOTOR
SD4
BY-PASS PAPER FEED SOLENOID
PS13
BY-PASS NO PAPER DETECT SENSOR
PS14
OPEN/CLOSE DETECT SENSOR
PS27
BY-PASS TRAY PAPER SEZE DETECT SENSOR
VR1
BY-PASS TRAY PAPER SIZE VR
M12
REVERSAL PAPER EXIT MOTOR
SD5
REVERSE GATE SOLENOID
PS28
REVERSAL DETECT SENSOR1
PS30
REVERSAL DETECT SENSOR2

JAM LIST

Following jam detection is carried out in this machine.

[1] Paper Jam

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
Main body, DB and ADU	By-pass feed tray	J10	When operating	PS16 (registration) is not turned ON within a certain period after SD4 (by-pass paper feed) has been turned ON.	If a copy is being made when a jam occurs, copy operation is stopped after completion of exit of the copy.	Remove the original paper from by-pass tray, then remove the jammed paper.
	Lower tray	J12	When operating	PS17 (no feed) is not turned ON within a certain period after SD2 (1st paper feed (lower)) has been turned ON.		Open the main body conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
	DB upper tray	J13	When operating	PS401 (paper feed detect) is not turned ON within a certain period after SD401 (paper feed (upper)) has been turned ON.		Open the DB conveyance door and remove the jammed paper and close it. Open the tray and remove the jammed paper and close it.
	DB middle tray or LCT	J14		PS401 (paper feed detect) is not turned ON within a certain period after SD402 (paper feed (middle)) has been turned ON.		
	DB lower tray	J15		PS401 (paper feed detect) is not turned ON within a certain period after SD403 (paper feed (lower)) has been turned ON.		
	Paper feed jam	J16	When operating	PS16 (registration) is not turned ON within a certain period after PS17 (no feed) or PS401 (paper feed detect) has been turned ON.		Open the main body conveyance door, DB conveyance door or front door and remove the jammed paper and close it.
		J80	When stationary	PS17 (no feed) is ON during idling.		
		J81		PS16 (registration) is ON during idling.		
		J82		PS401 (paper feed detect) is ON during idling.		
	Conveyance jam	J30	When operating	PS16 (registration) is not turned OFF within a certain period after MC1 (registration) has been turned ON.	The main body is stopped immediately.	Open the front door and remove the jammed paper and close it.
		J31		PS29 (fixing exit) is not turned ON within a certain period after MC1 (registration) has been turned ON.		
		J32		PS1 (paper exit) is not turned ON within a certain period after PS29 (fixing exit) has been turned ON. (at the straight eject mode)		
		J33		PS1 (paper exit) is not turned OFF within a certain period after it has been turned ON. (at the straight eject mode)		Open the exit door and remove the jammed paper and close it.

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
Main body, DB and ADU	Conveyance jam	J34-1	When operating	PS28 (reversal detect 1) is not turned ON within a certain period after PS29 (fixing exit) has been turned ON.	The main body is stopped immediately.	Open the exit door and remove the jammed paper and close it.
		J34-2		PS28 (reversal detect 1) is not turned OFF within a certain period after it has been turned ON.		
		J34-3		PS1 (paper exit) is not turned ON within a certain period after M501 (ADU paper feed) has been turned ON. (when the paper is reverse ejected.)		Open the front door and remove the jammed paper and close it.
		J34-4		PS1 (paper exit) is not turned OFF within a certain period after it has been turned ON. (when the paper is reverse ejected.)		Open the exit door and remove the jammed paper and close it.
		J34-5		PS30 (reversal detect 2) is not turned OFF within a certain period after it has been turned ON.		
		J92	When stationary	PS28 (reversal detect 1) is ON during idling.		
			When operating	PS17 (no feed) is not turned ON within a certain period after MC501 (ADU paper feed restart) has been turned ON.		Open the main body conveyance door and remove the jammed paper and close it. Open the ADU and remove the jammed paper and close it.
		J97-1		PS501 (ADU no feed) is not turned ON within a certain period after M501 (ADU paper feed) has been turned ON.		Open the exit door and remove the jammed paper and close it.
		J90	When stationary	PS29 (fixing exit) is ON during idling.		
		J91		PS1 (paper exit) is ON during idling.		
		J93		PS30 (reversal detect 2) is ON during idling.		
		J100		PS502 (ADU registration) is ON during idling.		
	Others	J20-1	When operating	During copying, the front door or exit door was opened.		Close the front door and exit door.
		J20-2		During copying, the main body conveyance door was opened.		Close the main body conveyance door.
		J20-3		During copying, the finisher was opened.		Close the finisher.

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
Finisher	FS-105	J72-1	When stationary	PS802 (conveyance drum entrance detect) is ON during idling.	FS-105 and main body are stopped immediately.	Remove the jammed paper of the finisher and main body.
		J72-2		PS804 (paper through detect) is ON during idling.		
		J72-3		PS803 (tray 1 paper exit detect) is ON during idling.		
		J72-10	When operating	PS803 (tray 1 paper exit detect) is not turned ON within a certain period after PS1 (paper exit) has been turned ON.		
		J72-11		PS803 (tray 1 paper exit detect) is not turned OFF within a certain period after it has been turned ON.		
		J72-12		PS802 (conveyance drum entrance detect) is not turned ON within a certain period after PS1 (paper exit) has been turned ON.		
		J72-13		PS802 (conveyance drum entrance detect) is not turned OFF within a certain period after it has been turned ON.		
		J72-14		PS804 (paper through detect) is not turned ON within a certain period after PS802 (conveyance drum entrance detect) has been turned ON.		
		J72-15		PS804 (paper through detect) is not turned OFF within a certain period after it has been turned ON.		
		J72-16		Paper detect sensor of the stapler unit is not turned ON within a certain period after M805 (paper exit) has been turned ON.		

	Classification	Jam code	Causes		Operation when jam occurs	Jam clearing method
RADF	DF-311	J61-0	When stationary	MS301 (cover open/close detect) is ON during idling.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it. If there is a jammed paper on a vertical conveyance unit in the main body, remove it.
		J61-1	When operating	PS301 (RADF open/close detect) was turned OFF during RADF operation.		
		J62-0		PS306 (original registration) is not turned ON within a certain period after the original feed has been started.		
		J62-1		PS306 (original registration) is not turned OFF within a certain period after it has been turned ON.		
		J62-2		PS308 (original feed detect) is not turned ON within a certain period after the pre-feed of the duplex original front side (include the simplex original) has been started.		
		J62-3		PS308 (original feed detect) is not turned ON within a certain period after the pre-feed of the duplex original back side has been started.		
		J62-4		PS308 (original feed detect) is not turned OFF within a certain period after the scanning of the duplex original front side (include the simplex original) has been started.		
		J62-5		PS308 (original feed detect) is not turned OFF within a certain period after the scanning of the duplex original back side has been started.		
		J63-0		PS307 (original exit detect) is not turned ON within a certain period after the scanning of the simplex original has been started.		
		J63-1		PS307 (original exit detect) is not turned ON within a certain period after the scanning of the duplex original back side has been started.		
		J63-2		At the simplex original is exited, PS307 (original exit detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-3		At the duplex original is exited, PS307 (original exit detect) is not turned OFF within a certain period after it has been turned ON.		

	Classifica-tion	Jam code	Causes		Operation when jam occurs	Jam clearing method
RADF	DF-311	J63-4	When operating	PS309 (original reversal detect) is not turned ON within a certain period after the scanning of the duplex original front side has been started.	RADF is stopped immediately. If there is paper during or after transfer, the main body is stopped after exit of the paper.	Open the RADF and remove the jammed paper and close it. If there is a jammed paper on a vertical conveyance unit in the main body, remove it.
		J63-5		PS309 (original reversal detect) is not turned ON within a certain period after the reverse feed has been started.		
		J63-6		At the start of the duplex original front side scanning, PS309 (original reversal detect) is not turned OFF within a certain period after it has been turned ON.		
		J63-7		At the start of the reverse feed, PS309 (original reversal detect) is not turned OFF within a certain period after it has been turned ON.		
		J65-1	When stationary	PS306 (original regist.) is ON during idling.		
		J65-2		PS308 (original feed detect) is ON during idling.		
		J65-4		PS309 (original reversal detect) is ON during idling.		
		J65-8		PS307 (original exit detect) is ON during idling.		

[2] Abnormality

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body and DB	Communication abnormality	F10-1	Serial communication between the PRDB (printer drive board) and ICB (image control board) is discontinued.	The main body is stopped immediately if it is in process of copying, and main relay is turned OFF.	OFF of SW2 (sub power) → ON	PRDB (Printer drive board) ICB (Image control board) SCDB (Scanner drive board)
		F10-2	The answer to the A/D conversion is not replied two times consecutively.			PRDB (Printer drive board)
		F10-3	DB communication abnormality signal is detected.			ICB (Image control board) SCDB (Scanner drive board) PFDB (Paper feed detect board)
	Paper feed lifting abnormality	F18-2	PS32 (upper limit (lower)) on the PFDB (paper feed detect board) is not turned ON within 26 seconds from ON of M8 (tray (lower)).			PRDB (Printer drive board) SCDB (Scanner drive board) PFDB (Paper feed detect board) M8 (tray (lower)) M403 (up/down (middle)) M404 (up/down (lower)) PS405 (upper limit (middle)) PS407 (upper limit (lower))
		F18-3	PS403 (upper limit (upper)) is not turned ON within 26 seconds from ON of M402 (up/down (upper)).			
		F18-4	PS405 (upper limit (middle)) is not turned ON within 26 seconds from ON of M403 (up/down (middle)).			
		F18-5	PS407 (upper limit (lower)) is not turned ON within 26 seconds from ON of M404 (up/down (lower)).			
	High voltage power source abnormality	F26-0	L detection data detected every 10 milliseconds becomes 0 twenty times consecutively.			TDS (Toner density sensor)
		F28-1	When charging output is judged to be abnormal discharge.		OFF of SW2 (sub power) → ON If the paper jam occurs, remove jammed paper.	Charging corona unit HV1 (High voltage unit 1) PRDB (Printer drive board)
		F28-2	When transfer output is judged to be an abnormal discharge.			Transfer corona unit HV2 (High voltage unit 2) PRDB (Printer drive board)
		F28-3	When separation output is judged to be an abnormal discharge.			Separation corona unit HV2 (High voltage unit 2) PRDB (Printer drive board)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Fixing high temperature abnormality	F34-1	TH1 (fixing temperature sensor 1) detecting temperature (fixing temperature) exceeds approx. 225°C. (Fixing high temperature abnormality detection software operates.)	Main relay is turned OFF, and all keys are not accepted.	Set to "0" the bit 1 in DIP SW3.	PRDB (Printer drive board) DCPS1 (DC power supply unit 1) TH1 (Fixing temperature sensor 1) TH2 (Fixing temperature sensor 2) L2 (Fixing heater lamp 1) L3 (Fixing heater lamp 2)
		F34-2	TH1 (fixing temperature sensor 1) detecting temperature (fixing temperature) exceeds approx. 235°C. (Fixing high temperature abnormality detection circuit operates.)			
		F34-3	TH2 (fixing temperature sensor 2) detecting temperature (fixing temperature) exceeds approx. 235°C. (Fixing high temperature abnormality detection software operates.)			
		F34-4	TH2 (fixing temperature sensor 2) detecting temperature (fixing temperature) exceeds approx. 250°C. (Fixing high temperature abnormality detection circuit operates.)			
	Fixing low temperature abnormality	F35-1	Warm-up is not completed within 180 seconds from the start of the warm-up. (Fixing low temperature abnormality detection software operates.)			
		F35-2	After completion of warm-up, fixing temperature is lower than a prescribed temperature. (Fixing low temperature abnormality detection software operates.)			
	Broken fixing sensor (open circuit)	F36-1	Fixing temperature is not reached 30°C within 50 seconds from the start of the warm-up. (Fixing sensor open circuit detection software operates.)			
		F36-2	TH2 (fixing temperature sensor 2) is broken (open circuit). (Fixing sensor open circuit detection circuit operates.)			
	Optics system abnormality	F40-0	The error of SRGA is detected.	If a copy is being made when a error occurs, main body is stopped after completion of exit of the copy.	OFF of SW2 (sub power)→ ON	ICB (Image control board)
		F41-1	At the start of optics initial search or reverse scanning, PS3 (optics home position) is not turned ON within a certain period.			ICB (Image control board) SCDB (Scanner drive board) M2 (Scanner drive)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Image processing abnormality	F46-0	The monitor value of the laser light amount is low.	The main body is stopped immediately if it is in process of copying, main relay is turned OFF, and all keys are not accepted.	OFF of SW2 (sub power) → ON If the paper jam occurs, remove jammed paper.	LDB (Laser diode board) ICB (Image control board)
		F46-8	Index cycle differs from the expectation.			INDEX (Index sensor board) ICB (Image control board) M5 (polygon)
		F46-10	AOC counter overflow	If a copy is being made when a jam occurs, main body is stopped after completion of exit of the copy.		CCD (CCD sensor board) DCPS1 (DC power supply unit 1) ICB (Image control board) INVB (Inverter board) L1 (Exposure lamp)
		F46-11	AGC counter overflow			
		F49-2	LDB (Laser diode board) connection abnormality	The main body is stopped immediately if it is in process of copying, main relay is turned OFF, and all keys are not accepted.		LDB (Laser diode board) ICB (Image control board)
		F49-4	INDEX (Index sensor board) connection abnormality			INDEX (Index sensor board) ICB (Image control board)
		F49-6	CCD (CCD sensor board) connection abnormality	If a copy is being made when a jam occurs, main body is stopped after completion of exit of the copy.		CCD (CCD sensor board) ICB (Image control board)
	Motor speed abnormality	F51-2	Speed abnormality in the M1 (main)	The main relay is turned OFF and all keys are not accepted.		M1 (main) PRDB (Printer drive board)
		F51-3	Speed abnormality in the M10 (toner supply 1)			M10 (toner supply 1) PRDB (Printer drive board)
		F51-4	Speed abnormality in the M3 (developing drive)			M3 (developing drive) PRDB (Printer drive board)
		F51-5	Speed abnormality in the M4 (drum)			M4 (drum) PRDB (Printer drive board)
		F51-6	Speed abnormality in the M5 (polygon)			M5 (polygon) ICB (Image control board) SCDB (Scanner drive board)
		F51-7	Speed abnormality in the M501 (ADU paper feed)			M501 (ADU paer feed) PRDB (Printer drive board)
	Fan lock abnormality	F52-1	Locking abnormality in the FM3 (main body cooling fan).		OFF of SW2 (sub power) → ON	FM3 (main body cooling fan) PRDB (Printer drive board)
		F52-2	Locking abnormality in the FM4 (conveyance suction).			FM4 (conveyance suction) PRDB (Printer drive board)
		F52-4	Locking abnormality in the FM1, 2 (scanner cooling fan 1, 2).			FM1 (scanner cooling fan 1) FM2 (scanner cooling fan 2) ICB (Image control board) SCDB (Scanner drive board)
	△3	F52-5	Option box cooling fan locking abnormality (printer kit)			Option box cooling fan Option relay board

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Main body	Image control communication abnormality	E56-01	When the SW2 (sub power) is turned ON, the answer from the ICB (Image control board) is not replied to the CB (Control board) within 10 seconds.	The main body is stopped immediately.	OFF of SW2 (sub power) → ON	CB (Control board) ICB (Image control board) SCDB (Scanner drive board) PRDB (Printer drive board)
		E56-02	The CB (Control board) is not detected the process ready signal 30 seconds or more during idling.			
		E56-03	The CB (Control board) is not detected the scanner ready signal 30 seconds or more during idling.			
		E56-04	The CB (Control board) is not detected the finisher ready signal 30 seconds or more during idling.			CB (Control board) ICB (Image control board) SCDB (Scanner drive board) Finisher
		E56-05	The CB (Control board) is not detected the original size detect signal within a certain period during the platen copy operation.			CB (Control board) ICB (Image control board) SCDB (Scanner drive board)
	Operation unit control abnormality	E56-06	Memory access error is occurred at the start of copy process.			CB (Control board) OB1 (Operation board 1) OB2 (Operation board 2) Display board
		E56-07	Control abnormality is occurred at the panel manager unit.			
		E56-08	Miss matching of the display data.			
		E56-09	Data abnormality of the image process unit parts.			
		E56-10	Reserved error code			
	Control abnormality	F56-11	The machine type of the software version is different from that of the image processing control program.	The main body is stopped immediately.	ROM is rewrote by ISW in the 25 mode after SW2 (sub power) turns OFF.	Image processing control program.
RADF	RADF abnormality	F60-0	Communication between the CB (control board) and RADF is discontinued for a certain time or more.	The RADF is stopped immediately.	OFF of SW2 (sub power) → ON If the paper jam occurs, remove jammed paper.	RADF ICB (Image control board) SCDB (Scanner drive board)
		F67-1	PS306 (original regist.), PS308 (original feed detect), PS309 (original reversal detect) adjustment faulty.			
		F67-2	PS304 (motor clock detect) is not detected clock pulse, when M301 (original conveyance) is turned ON.			
		F67-3	Writing and reading abnormality of the nonvolatile memory (NVRAM).			

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Finisher	FS-105 abnormality	F70-0	Communication abnormality	The main body and finisher are stopped immediately, main relay is turned OFF, and all keys are not accepted.	OFF of SW1 (main power) → ON If the paper jam occurs, remove jammed paper.	FS CB (Finisher control board) ICB (Image control board) SCDB (Scanner drive board)
	M804 (tray up/down) abnormality	F77-1	PS805 (tray upper limit detect) is not turned ON within 8 seconds from ON of M804 (tray up/down). Or the MS802 (up/down (upper)) is turned OFF.			FS CB (Finisher control board) M804 (tray up/down) MS802 (up/down (upper)) MS803 (up/down (lower))
		F77-2	PS806 (tray lower limit detect) is not turned ON within 8 seconds from ON of M804 (tray up/down).			
	M807 (conveyance drum) abnormality	F77-3	PS801 (conveyance drum position detect) is not turned ON within 4 seconds from ON of M807 (conveyance drum drive).			FS CB (Finisher control board) M807 (conveyance drum drive)
	M809 (alignment (front)) abnormality	F77-4	At the forward rotation, PS816 (alignment motor HP (front)) is not turned OFF within 250 m seconds from ON of M809 (alignment (front)).			FS CB (Finisher control board) M809 (alignment (front))
		F77-5	At the reverse rotation, PS816 (alignment motor HP (front)) in not turned ON within 2 seconds from ON of M809 (alignment (front)).			
	M808 (alignment (rear)) abnormality	F77-6	At the forward rotation, PS815 (alignment motor HP (rear)) is not turned OFF within 250 m seconds from ON of M808 (alignment (rear)).			FS CB (Finisher control board) M808 (alignment (rear))
		F77-7	At the reverse rotation, PS815 (alignment motor HP (rear)) in not turned ON within 2 seconds from ON of M808 (alignment (rear)).			
	M806 (stapler movement) abnormality	F77-8	At the forward rotation, PS814 (stapler unit HP) is not turned OFF within 400 milliseconds from ON of M806 (stapler movement).			FS CB (Finisher control board) M806 (stapler movement)
		F77-9	At the reverse rotation, PS814 (stapler unit HP) is not turned ON within 4 seconds from ON of M806 (stapler movement).			
	M805 (paper exit) abnormality	F77-10	PS813 (paper exit motor HP) is not turned ON within 1.5 seconds from ON of M805 (paper exit).			FS CB (Finisher control board) M805 (paper exit)

	Classification	Warning code	Causes	Operation in case of warning occurrence	Releasing method	Estimated abnormal parts
Finisher	M802 (stapler (front)) abnormality	F77-21	Stapler HP is not turned ON within a certain period after M802 (stapler (front)) is ON.	The main body and finisher are stopped immediately, main relay is turned OFF, and all keys are not accepted.	OFF of SW1 (main power) → ON If the paper jam occurs, remove jammed paper.	FS CB (Finisher control board) M802 (stapler (front))
	M803 (stapler (rear)) abnormality	F77-22	Stapler HP is not turned ON within a certain period after M803 (stapler (rear)) is ON.			FS CB (Finisher control board) M803 (stapler (rear))
	Safety device operate	F77-30	MS802 (up/down (upper)) or MS803 (up/down (lower)) is turned OFF. MS804 (stapler safety) is turned OFF during stapling.			FS CB (FC control board) MS802 (up/down (upper) MS803 (up/down (lower)) MS804 (stapler safety)
Main body	Nonvolatility RAM (NVRAM) abnormality	F80-1	Function parameter abnormality is detected.	Copy the factory saved data.	OFF of SW2 (sub power) → ON	PRMB (Parameter memory board)
		F80-2	Factory saved data abnormality is detected.	Copy the function parameter.		
		F80-3	Function parameter and factory saved data abnormality are detected.	Copy the ROM data to each.		
		F80-4	Can not be accessed to the function parameter.	–		
		F80-5	Can not be accessed to the factory saved data.			
	Flash ROM abnormality	F81-01	The checksum abnormality is detected on the flash ROM (on the ICB (Image control board)).	The main body is stopped immediately.	ROM is rewrote by ISW in the 25 mode after SW2 (sub power) turns OFF.	ICB (Image control board)
		F81-02	The machine type of software version is differed between CB (Control board) and ICB (Image control board).			CB (Control board) ICB (Image control board)
	△3	F81-03	The main body and the overall control program model type do not match.			Overall control program
△3	Print controller transmission error	F87-00	There was no response to the initialization command for more than 3 minutes with SW2 (sub power) ON	The main body is stopped immediately.	OFF of SW1 (main power) → ON	Printer control board Option relay board CB (Control board)
	Image processing abnormality	E88-00	Image processing abnormality is detected on the CB (Control board).	If a copy is being made when a abnormality occurs, main body is stopped after completion of exit of the copy.	OFF of SW2 (sub power) → ON	CB (Control board) ICB (Image control board) SCDB (Scanner drive board)
	Control board communication abnormality	E89-01	Job object pointer abnormality (The page management object is not obtained with any causes.)	The main body is stopped immediately.		CB (Control board) ICB (Image control board) SCDB (Scanner drive board) PRDB (Printer drive board)
		E89-02	Memory copy sequence abnormality (Cause can not be determined.)			
		E89-03	Through copy sequence abnormality (Cause can not be determined.)			
		E89-04	Memory scan signal stop is not completed.			
		E89-05	Memory printer signal stop is not completed.			
	SW2 (Sub power) OFF process abnormality	E89-06	SW2 (Sub power) OFF processing is not completed within a certain period.	The main body is stopped immediately and the all indicator are gone out on operation panel.		CB (control board)

[3] Faulty unit separation (Fail safe)

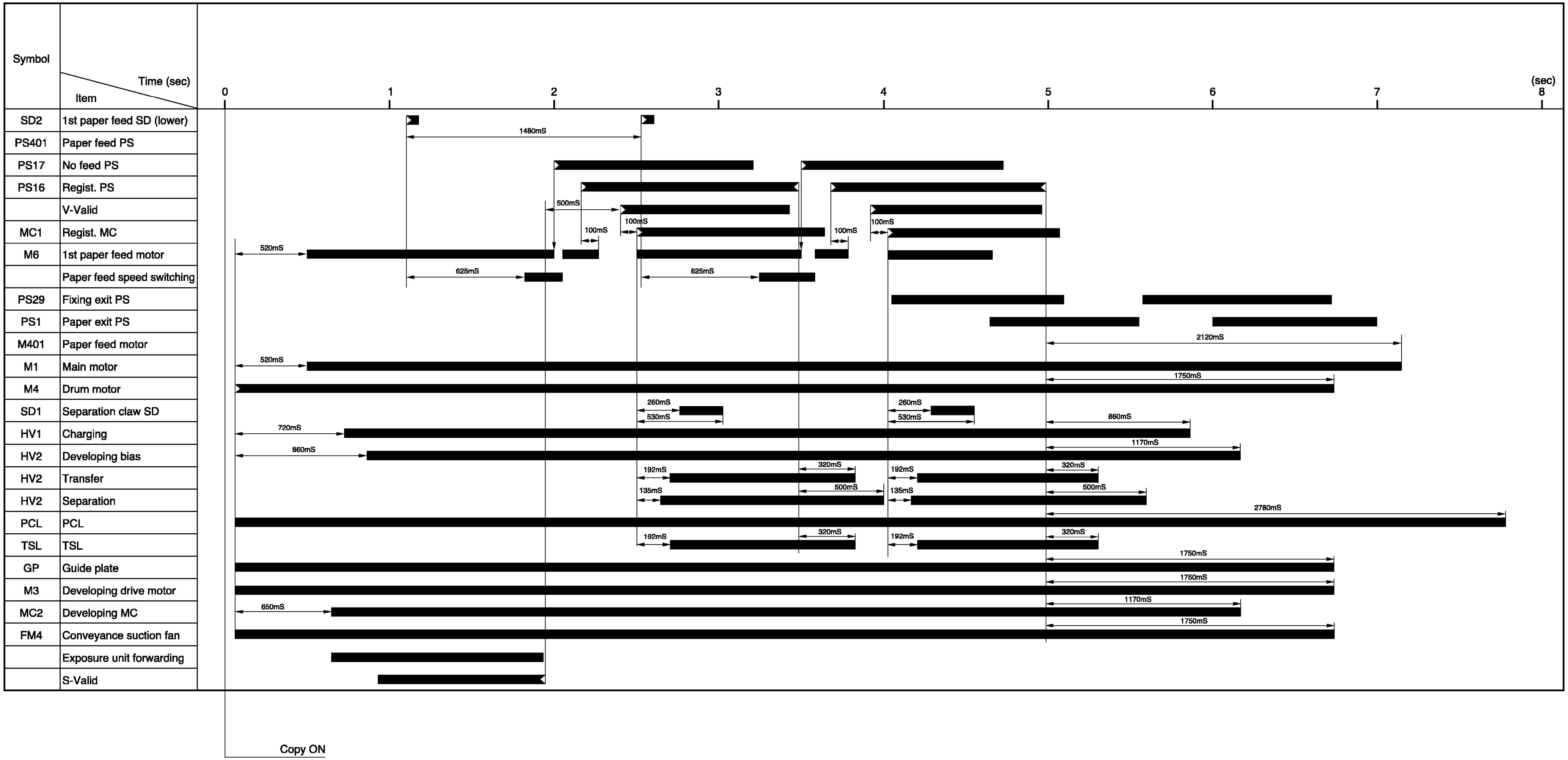
Faulty unit separation items are listed below.

Warning code	Contents	Separation subjects	Remarks
10-3	DB communication abnormality	DB unit (all tray)	Tray can not be selected.
18-1	Tray (upper) lifting abnormality	Main body upper tray	↑
18-2	Tray (lower) lifting abnormality	Main body lower tray	↑
18-3	DB tray (upper) lifting abnormality	DB upper tray	↑
18-4	DB tray (middle) lifting abnormality (LCT)	DB middle tray, LCT	↑
18-5	DB tray (lower) lifting abnormality	DB lower tray	↑
51-7	ADU feed motor abnormality	ADU	Duplex mode can not be selected.
60-0, 67-1, 67-2, 67-3	RADF abnormality	RADF	RADF can not be used.
77-1, 77-2, 77-3, 77-4, 77-5, 77-6, 77-7, 77-10, 77-30	Finisher tray system (tray 2 and 3) abnormality	Tray 2 and 3 (Finisher)	Tray 2 and 3 (Finisher) can not be used.
77-8, 77-9, 77-21, 77-22	Stapler abnormality (Finisher)	Stapler (Finisher)	Stapler mode can not be selected.

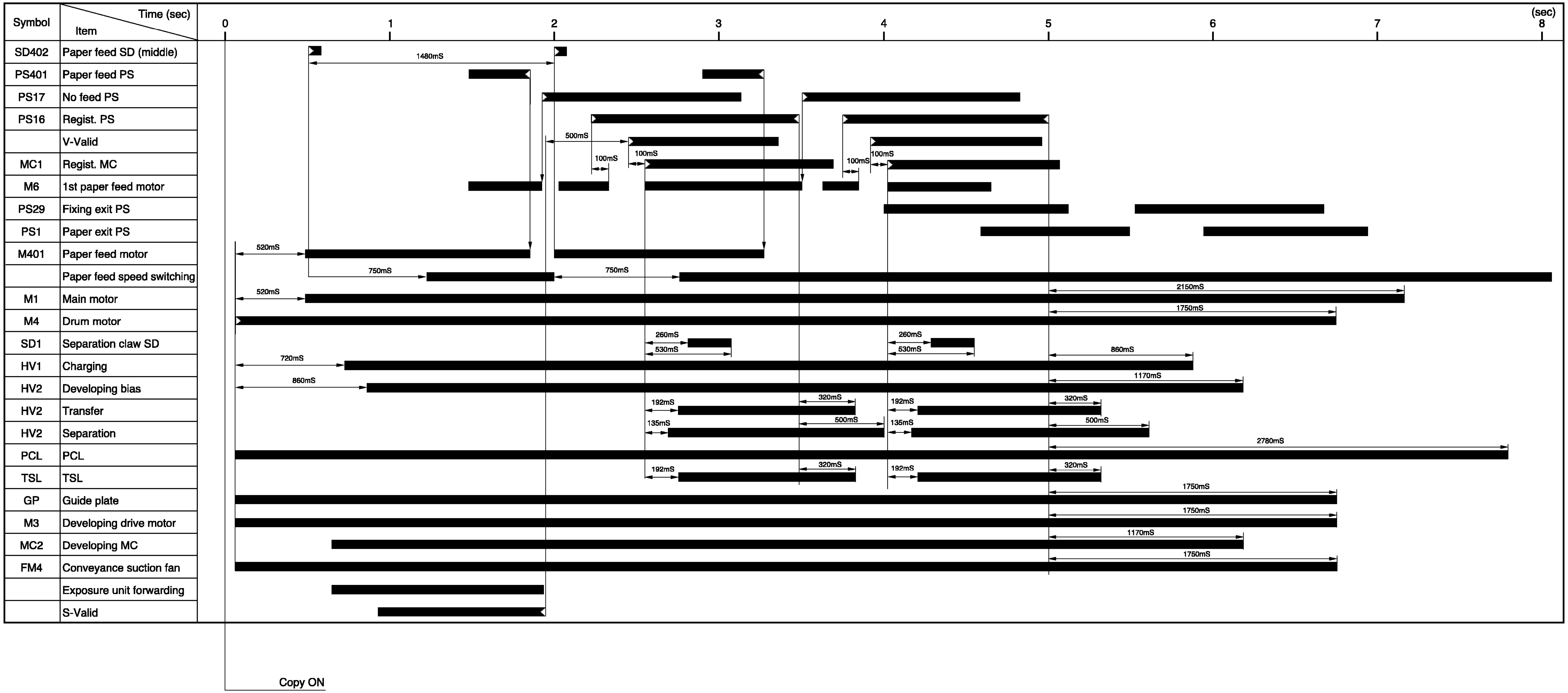
Separation procedure

When above abnormality occurs, press the AUTO RESET key to turn the SW2 (sub power) OFF/ON.
The trouble unit is separated and another function can be used. However, when the SW2 (sub power) is turned OFF/ON unless the trouble is not solved, the warning code reappears when detecting the abnormality again. (This trouble unit separation function is effective only one time.)

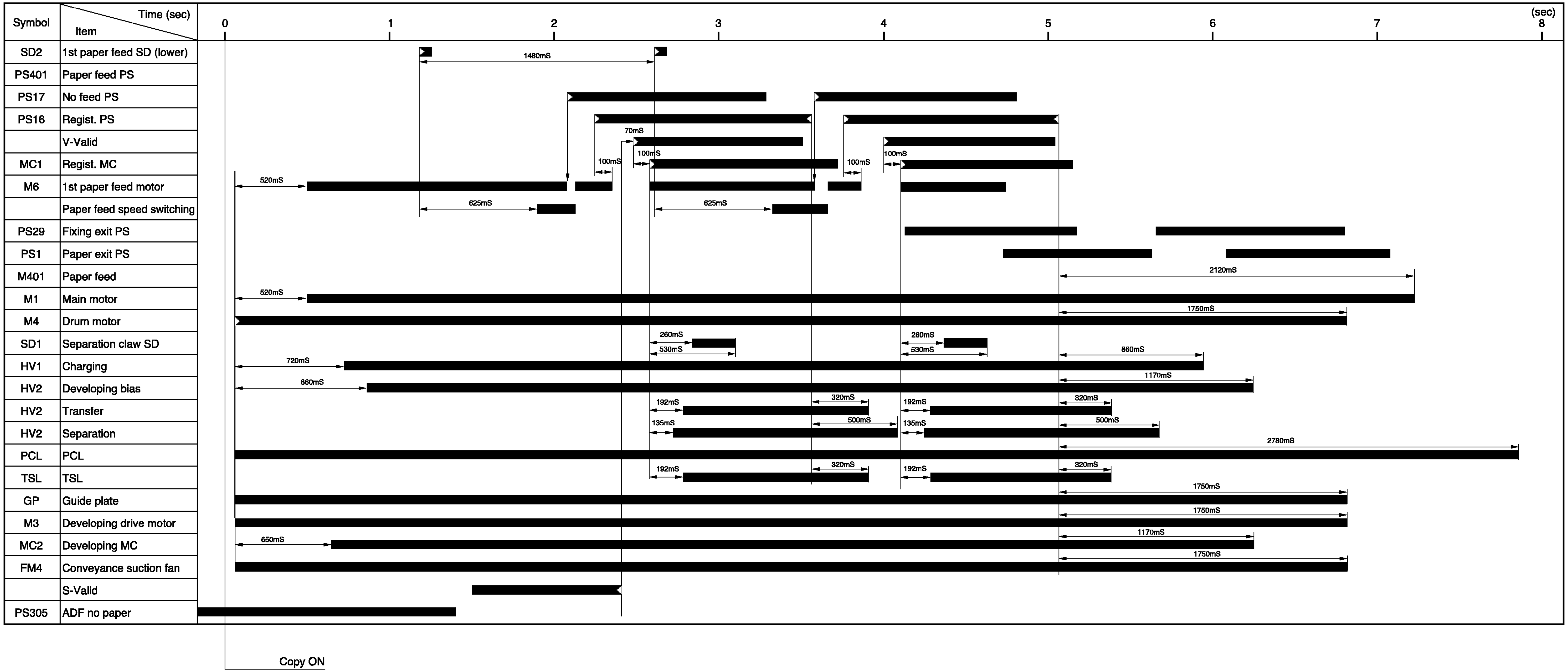
7040 TIMING CHART (A4, LIFE SIZE, TWO COPIES, TRAY PAPER FEED)



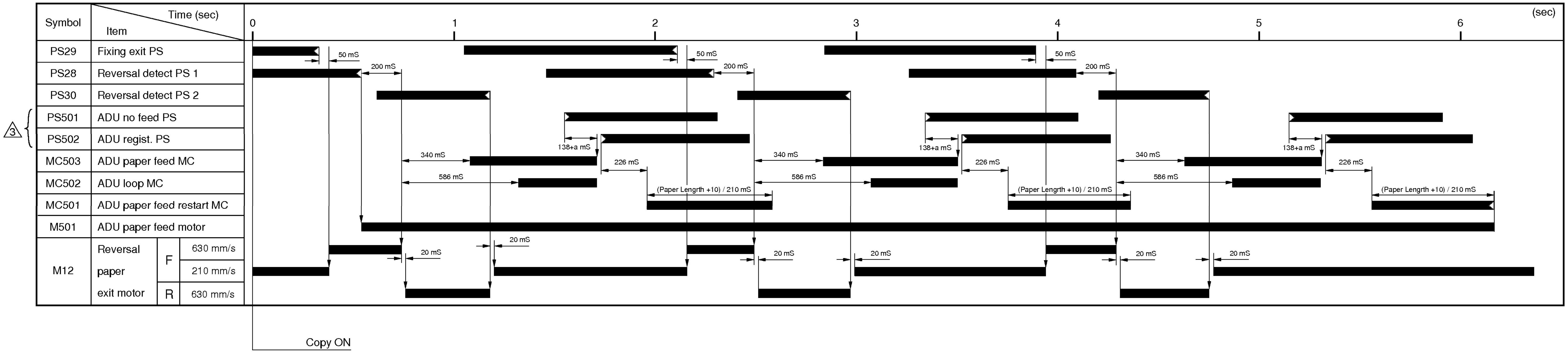
7040 TIMING CHART (A4, LIFE SIZE, TWO COPIES, DB MIDDLE TRAY PAPER FEED)



7040 TIMING CHART (DF ORIGINAL, A4, LIFE SIZE, TWO COPIES, TRAY PAPER FEED)



ADU TIMING CHART (A4, LIFE SIZE, THREE COPIES)



5

ADJUSTMENT

5. ADJUSTMENT

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HOW TO USE THE ADJUSTMENT SECTION

[1] Construction

This section details adjusting items and procedures. Use this section for making adjustments and as a checklist before implementing corrective measures in the field.

1. Does the power supply meet the requirements?
2. Is the power supply properly grounded?
3. Is the machine sharing its power source with another high current consumption machine that draws large currents intermittently? (e.g. an elevator, air conditioner, or other source of electrical consumption)
4. Is the installation environment suitable?
   a. The machine must be installed in a well-ventilated place free from high temperature, high humidity and direct sunlight.
   b. The machine must be installed on a level floor.
5. Does the cause of a defective image lie in the original itself?
6. Is the density adjusting control at the proper position?
7. Are the original glass and RADF platen guide clean?
8. Is the correct paper being used for the copy?
9. Are the copying materials and parts replaced when they reach the end of their usable life? (developer, drum, cleaning blade, etc.)
10. Is there toner in the toner cartridge?

The following items should also be observed when repairing the machine.

1. Only one side of the AC power line is disconnected when the main power of this machine is turned off. Always unplug the machine before beginning work. If absolutely necessary to work with the power on, exercise care to avoid being caught in the scanning rear of the exposure unit.
2. Special care should be taken when handling the fixing unit since it operates at extremely high temperatures.
3. The developing unit is surrounded by a strong magnetic field. Keep watches and metering equipment away from it.
4. Avoid scarring the drum with tools or similar objects.
5. Do not touch IC pins with your bare hands.

ADJUSTMENTS WHEN REPLACING PARTS

Adjustments (including checks) and settings are not only required when a defective copy image occurs, but also after replacing or reinstalling certain parts.

[How to Use the Tables]

The following items are used in the tables throughout this section.

1. Mode

Indicates the adjustment mode.

["25"] : 25 mode
["36"] : 36 mode
["47"] : 47 mode

2. Codes

Indicates the applicable code and/or Copy Quantity Setting button for each mode.

3. Conditions

New: Indicates adjustment (including check) is required when replacing a new part.

Reset: Indicates adjustment (including check) is required when a part has been re-installed.

4. Symbols used in the tables

①② : .... Indicates there is a priority sequence for adjustments (including checks) and settings.

○ (Empty circle): Indicates adjustments (including checks) and settings that can be carried out independently.

LIST OF ADJUSTMENT ITEM

Part Name	Adjustment items	Tray size setting	PM count reset	PM cycle set	Charging grid voltage adjustment	L detection adjustment	Vertical magnification adjustment (Printer, Platen)	Vertical magnification adjustment (RADF)	Horizontal magnification adjustment (Platen)	Restart timing adjustment (copier system)	Restart timing adjustment (RADF)	Paper feed loop amount adjustment	Leading edge original erasure adjustment	Centering adjustment	Image read point adjustment	PWM/Gamma correction	RADF scanning density adjustment	Drum count reset	Electrical RDH memory check	△3 RADF sensor adjustment	△3 RADF Original size adjustment (small size).	△3 RADF Original size adjustment (large size).
	Mode	25	25	25	36	36	36	36	36	36	36	36	36	36	36	36	36	47	47	47	47	47
	Code	2	3-1	3-2	1	1	2-1	2-1	2-1	2-2	2-2	2-3	2-4	2-5	2-6	6-1	6-2	91-1	198	69-02	69-00	69-01
Drum	New		○		②											③		①				
Developer	New		○			①										②						
Charging control plate	New				①											②						
High voltage unit 1	New				①											②						
Write unit	New/ Reinstall						①	②	③	④	⑤		⑥	⑦		○						
Parameter memory board	New	○		○	○	*	①	②	③	④	⑤	⑥	⑦	⑧	⑨	○	○					
Rubber roller for paper feed unit	New						①	②		③												
RADF	New/ Reinstall						①	②			③	④	⑤	⑥			⑦					
RADF slit glass (original glass (1))	New																○					
Expansion memory	New/ Reinstall																		○			
LCT (DB-608) paper size setting	–	○																				
DF control board	New																			①	②	③

- “New” means replace with a new part and “Reinstall” means to reinstall the part.
- The circles will above a number when there is as adjustment priority.

* When the parameter memory board is renewed or replaced, remember to renew the developer also before conducting the L-detection adjustment.

SETTING AND CHECKING WITH P FUNCTION

The P function enables display of the following parameters using the P button.

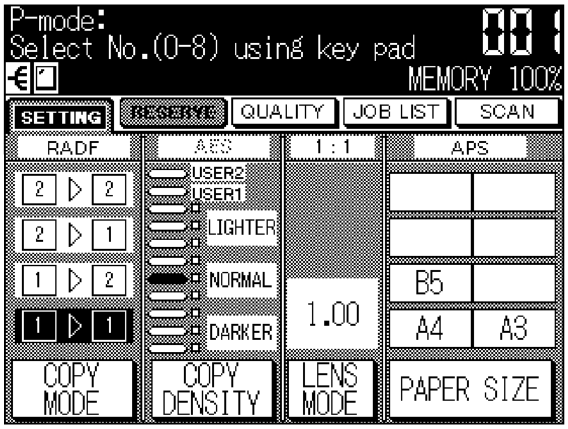
0. Checking all counter data information
1. Checking the total count / start date
2. Checking the PM count / start date
3. Checking the Drum count
4. Checking the developing count
5. Checking or Setting the density shift (text/photo)
6. Checking or Setting the density shift (text)
7. Checking or Setting the density shift (photo)
8. Checking or Setting the density shift (Increase contrast)

This section explains the various functions which is exclusive for the service technician.
For those used by the users, refer to “Operation section”.

[1] P Button Operating Procedure

a. Turn ON the SW1 (main power) and SW2 (sub power) to display the basic screen.
b. Press the P button.
c. The P Mode Screen will appear.

[P Mode Screen]



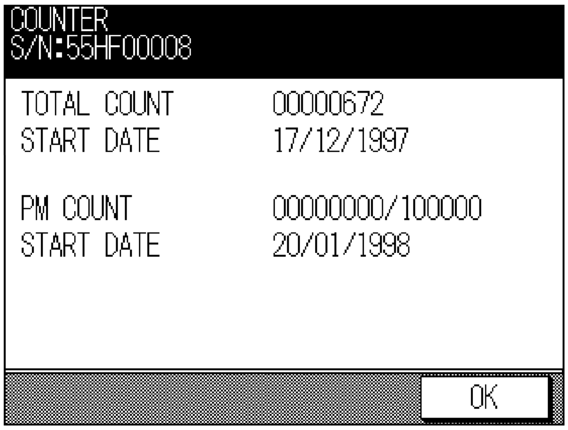
P-mode:
Select No.(0-8) using key pad
00
MEMORY 100%

d. Use the copy quantity setting buttons to enter the desired number, following the message on the operation panel.
e. Press Start print button to confirm the various data displayed in the message area.
f. Press the OK key or Stop/Clear button to return to the basic screen.

[2] Checking All Counter Data Information

Display the total count, PM count and start date.

[Counter Check Screen]



COUNTER
S/N:55HF00008

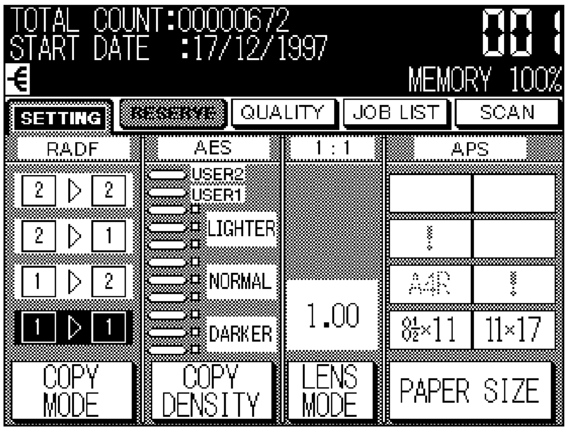
TOTAL COUNT 00000672
START DATE 17/12/1997

PM COUNT 00000000/100000
START DATE 20/01/1998

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 0 from the copy quantity setting button.	0
3	Press the Start print button.	◇
4	Check the all counter data information displayed in the message area.	
5	Press the OK key to return to basic screen.	OK

[3] Checking the Total Count / Start Date

[Total Count / Start Date Check Screen]



TOTAL COUNT:00000672
START DATE :17/12/1997

00
MEMORY 100%
SETTING
RESERVE
QUALITY
JOB LIST
SCAN
RADF
AES
1 : 1
APS
2 ▷ 2
2 ▷ 1
1 ▷ 2
1 ▷ 1
USER2
USER1
LIGHTER
NORMAL
DARKER
1.00
A4R
8½×11
11×17
COPY MODE
COPY DENSITY
LENS MODE
PAPER SIZE

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 1 from the copy quantity setting button.	1
3	Press the Start print button.	◈
4	Check the total count displayed in the message area.	
5	Press the Stop/Clear button to return to the basic screen.	⊘

[4] Checking the PM Count / Start Date

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 2 from the copy quantity setting button.	2
3	Press the Start print button.	◈
4	Check the PM count displayed in the message area.	
5	Press the Stop/Clear button to return to the basic screen.	⊘

[5] Checking the Drum Count

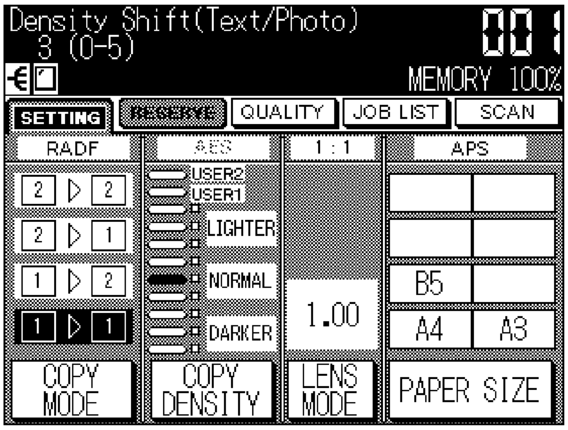
Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 3 from the copy quantity setting button.	3
3	Press the Start print button.	◈
4	Check the drum count displayed in the message area.	
5	Press the Stop/Clear button to return to the basic screen.	⊘

[6] Checking the Developing Count

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 4 from the copy quantity setting button.	4
3	Press the Start print button.	◈
4	Check the developing count displayed in the message area.	
5	Press the Stop/Clear button to return to the basic screen.	⊘

[7] Checking or Setting the Density Shift (text/photo) (*1)

[Density Shift (text/photo) Check Screen]



Density Shift(Text/Photo)
3 (0-5)

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 5 from the copy quantity setting button.	5
3	Press the Start print button.	◇
4	Check the density shift (text/photo) displayed in the message area.	
5	When changing the setting, enter a value from the copy quantity setting button and press the Start print button.	0 to 5 + ◇
6	Press the Stop/Clear button to return to the basic screen.	▽

[8] Checking or Setting the Density Shift (text) (*1)

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 6 from the copy quantity setting button.	6
3	Press the Start print button.	◇
4	Check the density shift (text) displayed in the message area.	
5	When changing the setting, enter a value from the copy quantity setting button and press the Start print button.	0 to 5 + ◇
6	Press the Stop/Clear button to return to the basic screen.	▽

[9] Checking or Setting the Density Shift (photo) (*1)

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 7 from the copy quantity setting button.	7
3	Press the Start print button.	◇
4	Check the density shift (photo) displayed in the message area.	
5	When changing the setting, enter a value from the copy quantity setting button and press the Start print button.	0 to 5 + ◇
6	Press the Stop/Clear button to return to the basic screen.	▽

[10] Checking or Setting the Density Shift (Increase contrast) (*1)

Step	Operation procedure	Operation
1	Press the P button.	P
2	Press 8 from the copy quantity setting button.	8
3	Press the Start print button.	◇
4	Check the density shift (Increase contrast) displayed in the message area.	
5	When changing the setting, enter a value from the copy quantity setting button and press the Start print button.	0 to 5 + ◇
6	Press the Stop/Clear button to return to the basic screen.	▽

△1
- Setting value can be set each mode individually.
- Decreasing the setting value darken the copy density.
- When changing the setting value, all density area that can be set with the COPY DENSITY key is changed.
- Decreasing the setting value (copy density is darker) increase the toner consumption for one copy.

25 MODE

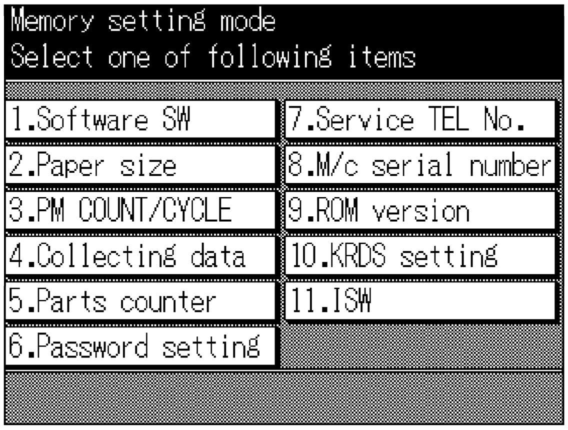
[1] Setting Method

A special operating mode called “25 Mode” has been provided with this machine. This mode enables rewriting of the non-volatile storage and specify other various settings.

1. Turn OFF the SW2 (sub power) when the SW1 (main power) remains ON.
2. Turn the SW2 (sub power) ON while pressing 2 and 5 of the copy quantity setting buttons. The 25 mode menu screen will appear.

In the 25 mode normal copy operation becomes unavailable.

[25 MODE MENU SCREEN]



Memory setting mode
Select one of following items

1.Software SW
7.Service TEL No.
2.Paper size
8.M/c serial number
3.PM COUNT/CYCLE
9.ROM version
4.Collecting data
10.KRDS setting
5.Parts counter
11.ISW
6.Password setting

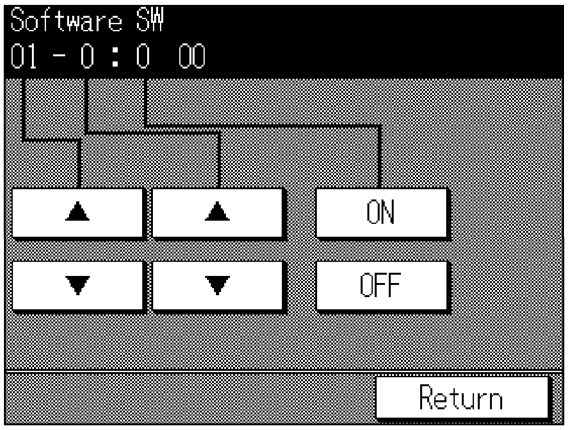
3. Press the desired item key on the LCD screen.
   Each setting screen will appear.
4. Enter data in each selected screen.
5. Press the Return key to check the data that has been entered.
6. Turn the SW2 (sub power) off to cancel the 25 mode.
7. New data will be effective after restarting.

[2] Setting Software DIP SW

1. Setting method

This setting specifies the software DIP switch on the software SW setting screen. (*1)

[Software SW setting screen]



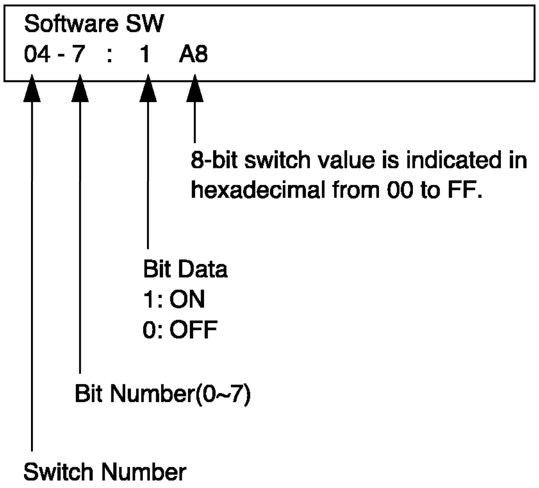
Software SW
01 - 0 : 0 00

▲
▲
ON
▼
▼
OFF
Return

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 1.Software SW key.
3	**[Software SW setting screen]** Select DIP switch number. Use the left ▲, ▼ key.
4	Select bit number of the DIP switch. Use middle ▲, ▼ key.
5	Select ON (=1) or OFF (=0) of the DIP switch. Use ON or OFF key. ON: Set bit. OFF: Clear bit.
6	Press the Return key to return to the 25 mode menu screen.

***1:**

- The bit of the DIP switch is written in the non-volatile RAM every time it is changed.
- The numbers shown in the message area are defined as follows:



```
Software SW
04 - 7  :  1   A8
```

8-bit switch value is indicated in hexadecimal from 00 to FF.

Bit Data
1: ON
0: OFF

Bit Number(0~7)

Switch Number

For each switch function, refer to “List of Software SW”.

<List of Software SW>

▨: Default value

DIPSW No.	BIT	Function	0	1
DIPSW1	0	Operation when key counter is removed	Ignore	▨ Instantaneous stop jam
	1	A3 (11x17) count method	Count as 1	▨ Count as 2
	2			
	3	Selection of maximum number of copies that can be stapled by FS-105 (for plain paper)	*1	*1
	4			
	5	Selection of maximum number of copies that can be stapled by FS-105 (for thick paper)	*2	*2
	6			
△1	7	Limitation of the number of the stapled copies set	▨ No limit	Temporary stop at 25 set
DIPSW2 △3	0	Toner out halt condition 1	▨ Priory to DIP SW3-2	Immediately halts after exiting paper
	1		▨ Do not change	Do not use
	2		Do not use	▨ Do not change
	3		Do not use	▨ Do not change
△3	4	Folded original mode	▨ No	Yes
△3	5	Message for staple automatic release (1 shot) indication	▨ Yes	No
△3	6	Prohibit rotation key indication	▨ No	Yes
	7	Prohibition of non-image area erases, repeat (auto) and original position correction	▨ No	Yes
DIPSW3	0			
	1	F34/F35/F36 latch	▨ No	Yes
△3	2	Toner out halt condition 2	▨ When job completed	At where number of copies end
△3	3	EKC password image restore period for copy reservation.	▨ Normal	Immediately resumes
	4		Do not use	▨ Do not change
△3	5	By-pass feed non-standard size selection.	▨ No	Yes
△1	6			
	7		▨ Do not change	Do not use
DIPSW4	0	Toner level detection ("Supply toner" indication)	*3	*3
	1			
	2	Number of copies allowed before machine stops after "Supply Toner" indication.	*4	*4
	3			
△3	4	Reserve list priority, delete key indication.	▨ Display	No Display
△3	5	Prohibition of copy operation at low toner detection	No	▨ Yes
△3	6	Copy reservation for coin vendor use.	▨ Possible (Enabled)	Not possible (Disabled)
	7	Image quality screen OK key display	Yes	▨ No
DIPSW5	0	Destination switchover	*5	*5
	1			
	2	F4 size setting	*6	*6
	3			
△3	4	RADF 8.5 x 11 size detection (At PS303 detection)	8.5x11	11x17
△3	5	Fixing control temperature change.	*21	*21
	6			
△1	7	Halftone fixing remedy (When the machine is not turned on for a long period.)	▨ No	Yes

DIPSW No.	BIT	Function	0	1
DIPSW6	0	Prevention of image faulty at high temperature and high humidity. (When the machine is not turned on for a long period.)	Yes	No
△3	1	K size selection (for Taiwan)	AB type size	K size
	2	Paper feed control for thick paper	*7	*7
	3			
	4	Polygon motor low speed rotation timing	*8	*8
	5			
	6	Polygon motor low speed rotation selection	*9	*9
	7			
DIPSW7	0	Judging of Image erase area	Original size priority	Paper size priority
	1	Selection of auto restart when paper is replenished.	No	Yes
	2	8.5x11 APS (Japan, Europe), A4 APS (U.S.A.)	Yes	No
△3	3	Non-standard size original platen APS (When original is set more than 30mm away from scale plate)	*10	*10
	4			
	5	Password request for 25/36/47 mode (Password: 9272)	No	Yes
	6	Selection of A series size (European version)	No	Yes
	7	Setting of displaying the full-auto screen	Yes	No
DIPSW8	0	Selection of non-image area erase mode	Rectangle erasure	Erasure for obliquely placed original
	1	Changing of key operator fixed magnification setting	Permit	Prohibit
	2	Disabling copying when PM count reached.	Permit	Prohibit
	3	Adjusting of LCD contrast to help screen.	No	Yes
	4	Priority tray when APS is released.	*11	*11
	5			
	6			
	7	Data collection (25 mode)	No	Yes
DIPSW9	0	Selection of copy quantity limit	*12	*12
	1			
	2			
	3			
	4			
	5			
	6	Message selection for P81	*13	*13
	7			
DIPSW10	0	Setting of weekly timer daylight saving time	*14	*14
	1			
	2			
	3			
	4	Selection of magnification mode when APS function is canceled.	Auto mode	Life size (1:1)
	5	Selection of setting screen message.	Guidance display	Machine state display
	6	Displaying of icon to line 3	No	Yes
	7	Displaying of JAM code	No	Yes

DIPSW No.	BIT	Function	0	1
DIPSW11	0	Tray screen OK key display	Yes	No
	1	Magnification screen OK key display	Yes	No
	2	Density screen OK key display	Yes	No
	3	Copy mode screen OK key display	Yes	No
	4	No “OK” switchover time	Short	Long
	5		Do not change	Do not use
	6			
	7		Do not change	Do not use
DIPSW12	0	Initial copy mode	*15	*15
	1			
	2	Initial image scanning mode	RADF	Platen
	3	Setting of PM count at which copying is inhibited.	*16	*16
	4			
	5			
	6	KRDS connection recognition	Not connect	Connect
	7	F/E screen switchover (except for F34, F35 and F36)	No	Yes
DIPSW13	0		Do not change	Do not used
	1		Do not change	Do not used
	2		Do not change	Do not used
△1	3	Fine line width smoothing filter	ON	OFF
	4			
	5			
△3	6	Non-original deletion threshold value change.	*22	*22
	7			
DIPSW14	0	Operation when stapling is inhibited. (large size: except for A5R, B5R, 5.5x8.5R)	*17	*17
	1			
	2	Operation when stapling is inhibited. (small size: except for A5R, B5R, 5.5x8.5R)	*18	*18
	3			
	4	Operation without staple clip at an applicable position when the 1-position stapling is selected.	*19	*19
	5			
	6	Operation without staple clip at an applicable position when the 2-position stapling is selected.	*20	*20
	7			
DIPSW15	0		Do not change	Do not used
△1	1	Waiting the print start at the copy reservation (Countermeasure against paper wrinkling by the fixer).	Not waiting	Waiting
	2	Waiting the print start other than the copy reservation (Countermeasure against paper wrinkling by the fixer).	Not waiting	Waiting
△3	3	Universal tray switch screen.	Yes	No (special display)
	4	Face up paper exit selection during by-pass feed selection (Tray 1 or no FNS)	Yes	No
	5	Universal tray switch screen A type row display.	Yes	No
	6	Finisher tray 1 full-stack detection & auto tray switching.	No	Yes
	7	Auto tray switching when finisher tray 2/3 full-stack is detected.	No	Yes

DIPSW No.	BIT	Function	0	1
DIPSW16	0	Separation claw ON timing (400 dpi)	Separation claw ON timing (400 dpi) Enter setting value by binary number. Default value: 56 (111000)	
	1			
	2			
	3			
	4			
	5			
	6			
	7			
DIPSW17	0	Separation claw OFF timing (400 dpi)	Separation claw OFF timing (400 dpi) Enter setting value by binary number. Default value: 85 (1010101)	
	1			
	2			
	3			
	4			
	5			
	6			
	7			
DIPSW18	0	Unit isolation (1)	–	–
	1		Tray 2 (copier) can be used.	Tray 2 (copier) is isolated.
	2			
	3			
	4		Tray 3 (DB upper) can be used.	Tray 3 (DB upper) is isolated.
	5		Tray 4 (DB middle) can be used.	Tray 4 (DB middle) is isolated.
	6		Tray 5 (DB lower) can be used.	Tray 5 (DB lower) is isolated.
	7		DB can be used.	DB is isolated.
DIPSW19	0	Unit isolation (2) △3	Printer board can be used	Printer board is isolated
	1			
	2			
	3			
	4	△3	ADU can be used	ADU is isolated
	5			
	6			
	7		RADF can be used.	RADF is isolated.
DIPSW20	0	Unit isolation (3)		
	1			
	2		Finisher tray 2/3 can be used.	Finisher tray 2/3 are isolated.
	3			
	4		Stapler can be used.	Stapler is isolated.
	5			
	6			
	7			
△3 DIPSW21 ~ DIPSW24	-	Preliminaries	–	–

*1: Selection of maximum number of copies that can be stapled by FS-105 (for plain paper)

Mode	1-4	1-3
50 copies	0	0
45 copies	0	1
40 copies	1	0
35 copies	1	1

*2: Selection of maximum number of copies that can be stapled by FS-105 (for thick paper)

Mode	1-6	1-5
20 copies	0	0
15 copies	0	1
25 copies	1	0
10 copies	1	1

*3: Toner level detection (“Supply toner” indication)

Mode	4-1	4-0
After 100 copies	0	0
After 1000 copies	0	1
After 2000 copies	1	0
After 3000 copies	1	1

△3 *4: Number of copies allowed before machine stops after “Supply Toner” indication.

Mode	4-3	4-2
0	0	0
1000	0	1
2000	1	0
3000	1	1

△3 *5: Destination switchover

Mode	5-1	5-0
Japan	0	0
U.S.A.	0	1
Europe	1	0
Taiwan	1	1

*6: F4 size setting

Mode	5-3	5-2
8.5 x 13 (216 x 330)	0	0
8.25 x 13 (210 x 330)	0	1
8.125 x 13 (206 x 330)	1	0
8 x 13 (203 x 330)	1	1

*7: Paper feed control for thick paper

Mode	6-3	6-2
Normal	0	0
30 PPM	0	1
20 PPM	1	0

△3 *8: Polygon motor low speed rotation timing

Mode	6-5	6-4
15 sec after job is completed	0	0
30 sec after job is completed	0	1
60 sec after job is completed	1	0
120 sec after job is completed	1	1

△3 *9: Polygon motor low speed rotation selection

Mode	6-7	6-6
Low speed does not take place.	0	0
Low speed rotation; 20000 rpm	0	1
Stop	1	0
400 dpi rotation (33,070.9 rpm)	1	1

*10: Non-standard size original platen APS

Mode	Size	7-4	7-3
Japan	B5R	0	0
	B6R	1	0
U.S.A.	5.5 x 8.5R	0	0
	8.5 x 11	0	1
Europe	B5R	0	0
	A5R	1	0

*11: Priority tray when APS is released

Mode	8-6	8-5	8-4
No preference	0	0	0
Lower tray; main body	0	1	0
DB1	0	1	1
DB2	1	0	0
DB3	1	0	1

*12: Selection of copy quantity limit

Mode	9-3	9-2	9-1	9-0
Unlimited	0	0	0	0
1	0	0	0	1
3	0	0	1	0
5	0	0	1	1
9	0	1	0	0
10	0	1	0	1
20	0	1	1	0
30	0	1	1	1
50	1	0	0	0
99	1	0	0	1

*13: Message selection for P81

Mode	9-7	9-6
Set the key counter	0	0
Set the copy card	0	1
Insert a coin	1	0

*14: Setting of weekly timer daylight saving time

Mode	10-3	10-2	10-1	10-0
0 minutes	0	0	0	0
30 minutes	0	0	1	1
60 minutes	0	1	1	0
90 minutes	1	0	0	1
120 minutes	1	1	0	0
150 minutes	1	1	1	1

*15: Initial copy mode

Mode	12-1	12-0
1-1	0	0
1-2	0	1
2-1	1	0
2-2	1	1

*16: Setting of PM count at which copying is inhibited.

Mode	12-5	12-4	12-3
1000 copies	0	0	0
2000 copies	0	0	1
3000 copies	0	1	0
4000 copies	0	1	1
5000 copies	1	0	0

*17: Operation when stapling is inhibited. (large size)

Mode	14-1	14-0
Auto cancel	0	0
Auto switching to 1-position stapling mode	0	1
Inhibit	1	0
Forced 2-position stapling mode operation	1	1

△1 *18: Operation when stapling is inhibited. (small size)

Mode	14-3	14-2
Auto cancel	0	0
Inhibit	1	0
Forced 1-position stapling mode operation	1	1

△1 *19: Operation without staple clip at an applicable position when the 1-position stapling is selected.

Mode	14-5	14-4
Auto cancel	0	0
Inhibit	1	0
Forced 1-position stapling mode operation	1	1

△1 *20: Operation without staple clip at an applicable position when the 2-position stapling is selected.

Mode	14-7	14-6
Auto cancel	0	0
Inhibit	1	0
Forced 2-position stapling mode operation	1	1

△3 *21: Fixing control temperature change

Mode	5-6	5-5
Normal control	0	0
+10°C	0	1
–10°C	1	0
Normal control	1	1

△3 *22: Non-original deletion threshold value change.

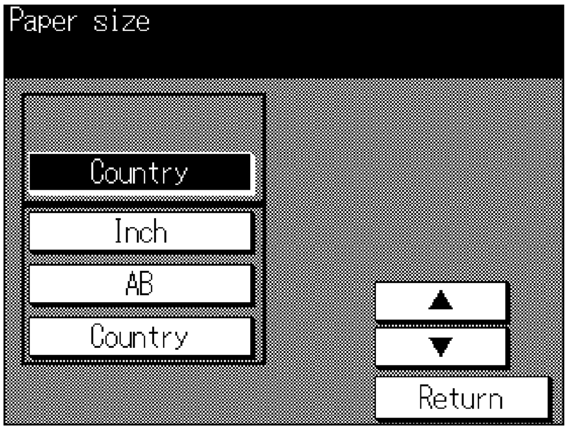
Caution: Denser originals will be easier to detect as the threshold value becomes smaller, however it will be more susceptible to detection error from stray light.

Mode	13-7	13-6
Threshold value 80h	0	0
Threshold value 60h	0	1
Threshold value 50h	1	0
Threshold value 50h	1	1

[3] Tray Size Setting

This function stores the paper size in the memory of the main body if it has been changed .

[Tray size setting screen]



Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 2.Paper size key.
3	**[Tray size setting screen]** Press the tray key to be changed.
4	Press the ▲, ▼ key to select a paper size.
5	Press the Return key to return to the 25 mode menu screen.

Reference:

- Since the upper tray of the main body is the ADU, the selection message is not displayed.
- When the DB-208 or DB-608 is not installed, the trays of the DB section is not displayed.
- Availability of paper size depends on the selected tray. The unavailable paper sizes will be skipped and not displayed.
- New data on tray size will be written in non-volatile RAM every time it is changed in this screen.
- The following table shows the paper sizes that can be used in the LCT (DB-608).

Japan	A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R
Europe	A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R
U.S.A.	8.5 x 11, 8.5 x 11R, A4, A4R

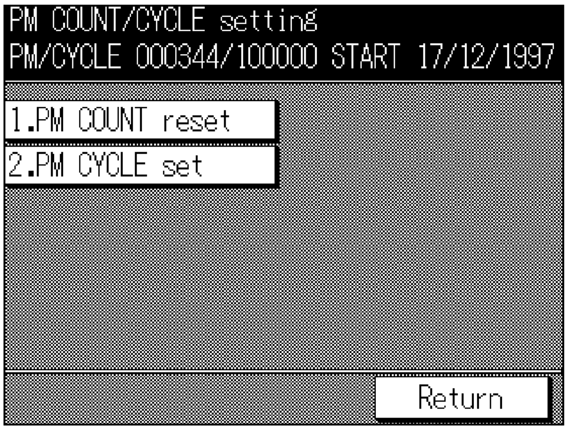
Caution:

- The main body tray, all trays in the DB-208, the upper tray of the DB-608 and the by-pass tray can not be adjusted in the Non-volatile RAM. These trays detect paper size via sensors.
- The size series of the universal tray can be selected as follows.
  - · Destination setting
  - · AB series
  - · Inch series
- The screen is automatically changed from the optional tray according to the type of trays.

[4] PM Count Setting

This function resets the PM count and sets the PM cycle. Care should be taken to reset the PM count properly.

[PM Count/Cycle setting menu screen]

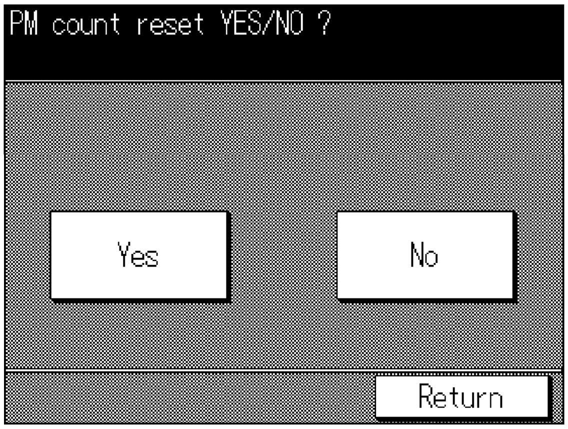


PM COUNT/CYCLE setting
PM/CYCLE 000344/100000 START 17/12/1997

1. PM count reset

Select whether to reset the count in the PM count reset screen.

[PM count reset screen]



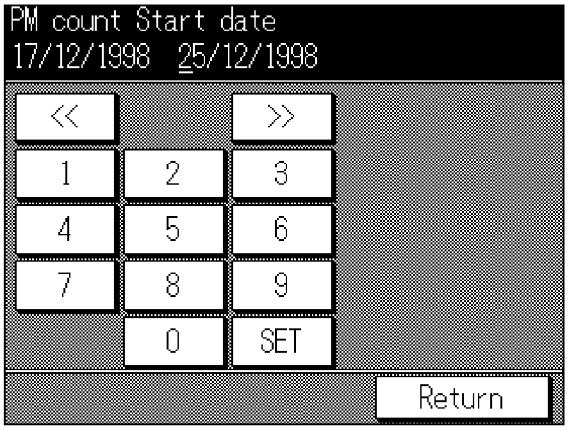
PM count reset YES/NO ?

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 3.PM COUNT/CYCLE key.
3	**[PM Count/Cycle Setting Menu Screen]** Press the 1.PM COUNT reset key.
4	**[PM count reset screen]** Press the Yes key to reset the PM count. Press the No or Return key, then the PM count is not reset and to return to the PM count/cycle setting menu screen.

2. Entering PM Count Start date

When resetting the PM count, it is necessary to input the start date, and the screen below will appear automatically.

[PM Count Start date entering screen]



PM count Start date
17/12/1998 25/12/1998

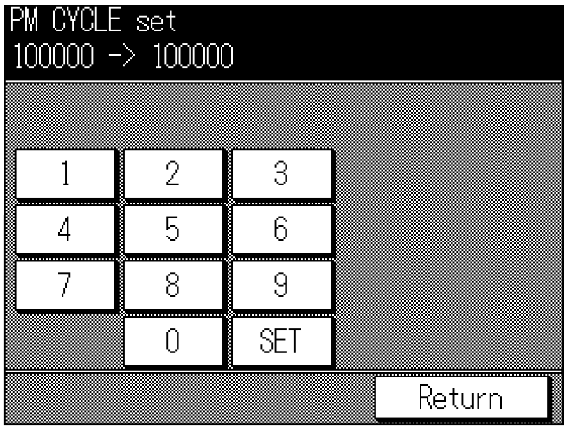
Step	Operation procedure
1	**[PM Count Start date entering screen]** Enter a PM count start date from the numeric key.
2	Press the SET key to enter the data that has been entered.
3	Press the Return key to return to the PM count/cycle menu screen.

Caution: When pressing the Return key without pressing the SET key, the PM count start date is not changed. It is necessary to reset the count again for inputting the count.

3. Setting PM cycle

This function sets the PM cycle.

[PM Cycle Setting Screen]



PM CYCLE set
100000 -> 100000

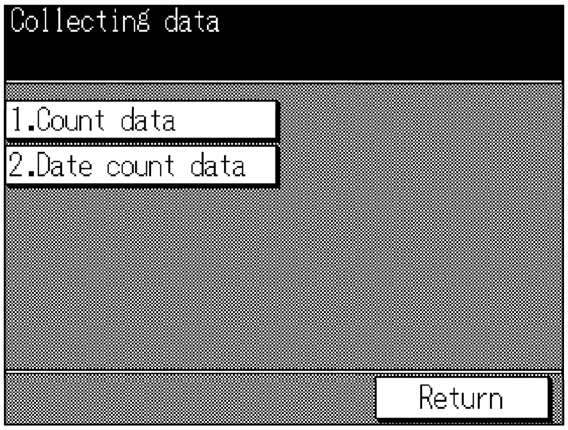
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 3.PM COUNT/CYCLE key.
3	**[PM Count/Cycle Setting Menu Screen]** Press the 2.PM CYCLE set key.
4	**[PM Cycle Setting Screen]** Enter PM cycle from the numeric key. Enter upper 3-digit (hundred thousand, ten thousand, thousand) only.
5	Press the SET key to enter a PM cycle that has been entered.
6	Press the Return key to return to the PM count/ cycle setting menu screen.

[5] Data Collection

This function enables viewing of the various data recorded in the machine.

Also, it is possible for the collected data to be checked by KRDS and management listing.

[Data collection menu screen]



Collecting data

<Data collection list>

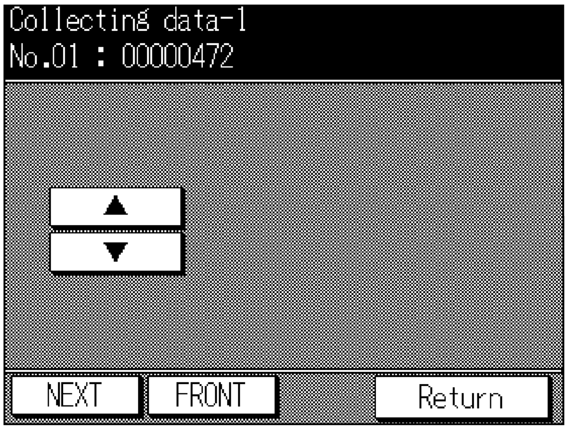
Classification	Contents	Pre-operation
Data collection 1	Count number of copies by each size	– (*1)
	Count RADF original feed quantities	
Data collection 2	Count number of JAM occurrence by each point	Enter the 25 mode. Select [1. Software SW]. Set the address to 8-7:1 (*2)
Data collection 3	Count number of copies by each mode	
Data collection 4	Count number of SC occurrence	

*1: Only data collection 1 can be checked in default.

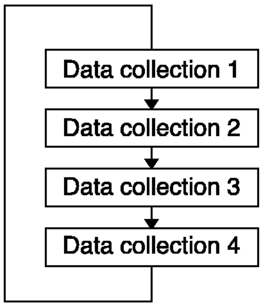
△3 *2: The setting is 25 mode, Dip-SW 8-7 to “1”.

1. Operation procedure

[Data collection screen]



Collecting data-1
No.01 : 00000472

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 4.Collecting data key.
3	**[Data collection menu screen]** Press the 1.Count data key.
4	**[Data collection screen]** Change the data number with the ▲ or ▼ key.
5	Pressing NEXT or FRONT key enables to display next data collection screen. (*3)  Data collection 1 Data collection 2 Data collection 3 Data collection 4
6	Press the Return key to return to the data collection menu screen.

(1) The data is displayed at the line 2 in the message display area as “Data number (No.): Count value (000000)”.

(2) The data number can be changed by pressing the ▲ or ▼ key.

(3) Press and hold the ▲ or ▼ key to display the next items continuously.

△3 *3: In order to confirm collected data 2 to 4, set Dip-SW 8-7 to “1” beforehand.

2. Data collection details

(1) Data collection 1

a. Count number of copies by each size

Type	Size No.	Paper size for destination		
		Japan	Europe	U.S.A
Count number of copies by each size △3	1	A4+A4R	A4+A4R	8.5 x 11 +8.5 x 11R
	2	B5+B5R	B5+B5R	5.5 x 8.5 +5.5 x 8.5R
	3	A5+A5R	A5+A5R	–
	4	8.5 x 11 +8.5 x 11R	–	–
	5	AB series Special	AB series Special	Inch series Special
	6	A3R	A3R	11 x 17R
	7	A4R	A4R	8.5 x 14R
	8	A5R	A5R	8.5 x 11R
	9	B4R	B4R	5.5 x 8.5R
	10	B5R	B5R	–
	11	B6R	F4R	–
	12	Post card	–	–
	13	–	–	–
	14	8.5 x 11R	–	–
	15	–	–	–

Maximum count number: 999,999

b. Count RADF original feed quantities

Type	Size No.	Paper size for destination		
		Japan	U.S.A	Europe
Count RADF original feed quantities	16	ADF mode original feed counter		
	17	RADF mode original feed counter		
	18	ADF mixed original mode original feed counter		
	19	RADF mixed original mode original feed counter		

Maximum count number: 999,999

(2) Data collection 2
Count number of JAM occurrence by each point

No.	Jam	Point
1	10-0	By-pass
2	11-0	–
3	12-0	Tray (main body)
4	13-0	DB upper tray
5	14-0	DB middle tray or LCT
6	15-0	DB lower tray
7	16-0	Paper feed jam
8	–	–
9	–	–
10	–	–
11	30-0	Conveyance jam
12	31-0	Conveyance jam
13	–	–
14	–	–
15	32-0	Conveyance jam
16	33-0	Conveyance jam
17	34-1	Conveyance jam
18	34-2	Conveyance jam
19	34-3	Conveyance jam
20	34-4	Conveyance jam
21	34-5	Conveyance jam
22	97-1	Conveyance jam
23	92-0	Conveyance jam
24	–	–
25	–	–
26	61-0	DF-311
27	61-1	DF-311
28	62-0	DF-311
29	62-1	DF-311
30	62-2	DF-311
31	62-3	DF-311
32	62-4	DF-311
33	62-5	DF-311
34	63-0	DF-311
35	63-1	DF-311
36	63-2	DF-311
37	63-3	DF-311
38	63-4	DF-311
39	63-5	DF-311
40	63-6	DF-311
41	63-7	DF-311
42	72-10	FS-105
43	72-11	FS-105
44	72-12	FS-105
45	72-13	FS-105
46	72-14	FS-105
47	72-15	FS-105
48	72-16	FS-105
49	–	–
50	–	–

Maximum count number: 999,999

(3) Data collection 3
Count number of copies by each mode

No.	Contents
1	Platen 1-1 mode
2	–
3	ADF 2-1 mode
4	ADF 2-2 mode
5	ADF 1-1 mode
6	ADF 1-2 mode
7	Finisher (Staple mode)
8	Finisher (Sort mode)
9	Finisher (Group mode)
10	Finisher (No. of stapling)
11	1.0 magnification mode
12	Fixed ratio (E3: 1.41/2.00)
13	Fixed ratio (E2: 1.22/1.55)
14	Fixed ratio (E1: 1.15/1.29)
15	Fixed ratio (R1: 0.86/0.77)
16	Fixed ratio (R2: 0.82/0.65)
17	Fixed ratio (R3: 0.71/0.50)
18	Arbitrary magnification
19	Zoom
20	2.00 magnification
21	0.45 magnification
22	AMS mode
23	APS mode
24	AE mode
25	Interrupt mode
26	By-pass feed mode
27	Book copy mode
28	Frame erase mode
29	Fold erase mode
30	1.0 image shift mode
31	Reduction image shift mode
32	Thick paper
33	Thin paper

No.	Contents
34	No. of paper feed quantities at inter-sheet mode
35	–
36	No. of paper feed quantities at OHP mode
37	No. of paper feed quantities at mixed original mode
38	Access number of the Job memory call mode (Number of pressing the P button)
39	Pre-heat mode
40	Copy quantity is set to 1.
41	Copy quantity is set between 2 and 5.
42	Copy quantity is set between 6 and 10.
43	Copy quantity is set to 11 or above.
44	Inter-sheet
45	–
46	Photo mode
47	–
48	Verti./Horiz. zoom mode
49	Book memory mode
50	Single step mode
51	Text/Photo mode
52	Text mode
53	Arbitrary density mode
54	No. of paper feed quantities at OHP mode 2
55	No. of paper feed quantities at inter-sheet and thick paper mode
56	–
57	Image insert mode
58	Chapter management mode
59	Combination mode
60	Repeat mode
61	Reverse image mode
62	Non-image area erase mode
63	Increase contrast mode
64	Auto layout copy
65	Face up output
66	Rotation sort
67	–
68	Copy quantity of paper feed from tray 2
69	Copy quantity of paper feed from tray 3
70	Copy quantity of paper feed from tray 4
71	Copy quantity of paper feed from tray 5
72	Copy quantity of paper feed from tray 6
73	Finisher, Number of stapling (front)
74	Finisher, Number of stapling (rear)
75	Number of copies for booklet mode copy

Maximum count number: 99,999,999

(4) Data collection 4
Count number of SC occurrence (F code)

No.	Error code (decimal number)		Classification
	Main code	Sub code	
1	10-1		Communication abnormality
2	10-2		
3	10-3		
4	18-1		Paper feed lifting abnormality
5	18-2		
6	18-3		
7	18-4		
8	18-5		
9	26-0		High voltage power source abnormality
10	28-1		
11	28-2		
12	28-3		
13	34-1		Fixing high temperature abnormality
14	34-2		
15	34-3		
16	34-4		
17	35-1		Fixing low temperature abnormality
18	35-2		
19	36-1		Broken fixing sensor
20	36-2		
21	40-0		Optics system abnormality
22	41-1		
23	46-0		Image processing abnormality
24	46-8		
25	46-10		
26	46-11		
27	49-2		
28	49-4		
29	49-6		
30	51-2		Motor speed abnormality
31	51-3		
32	51-4		
33	51-5		
34	51-6		
35	51-7		
36	52-1		Fan lock abnormality
37	52-2		
38	52-3		
39	52-4		

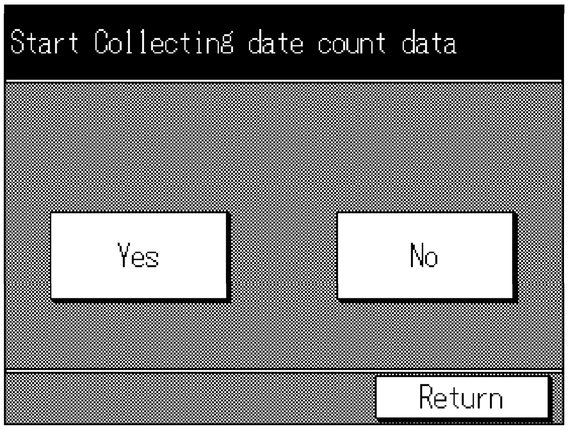
No.	Error code (decimal number)		Classification
	Main code	Sub code	
40	56-1		Image control communication abnormality
41	56-2		
42	56-3		
43	56-4		
44	56-5		
45	56-6		Operation control section system error
46	56-7		
47	56-8		
48	56-9		
49	56-10		
50	60-0		RADF abnormality
51	67-1		
52	67-2		
53	67-3		
54	70-0		Finisher abnormality
55	77-1		
56	77-2		
57	77-3		
58	77-4		
59	77-5		
60	77-6		
61	77-7		
62	77-8		
63	77-9		
64	77-10		
65	77-21		
66	77-22		
67	77-30		
68	80-1		Non-volatile memory abnormality
69	80-2		
70	80-3		
71	80-4		
72	80-5		
73	81-1		Flash ROM abnormality
74	81-2		
75	88-0		Image processing abnormality
76	89-1		Control board communication abnormality
77	89-2		
78	89-3		
79	89-4		
80	89-5		
81	89-6		
82	56-11		Control abnormality
△3 83	87-0		Print controller transmission abnormality
△3 84	52-5		Fan lock abnormality

Maximum count number: 9,999

3. Starting Periodic Date Collection

Reset the periodic data from the setting periodic collection start date. Make a date that this operation is performed as a new periodic collection start date. The periodic data can be checked with the KRDS and management list.

[Starting periodic date collection screen]

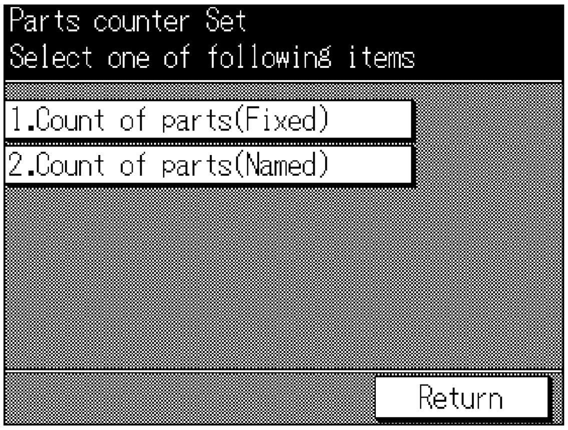


Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 4.Collecting data key.
3	**[Data collection menu screen]** Press the 2.Date count data key.
4	**[Starting periodic date collection screen]** Press the Yes key to start the periodic data collection. Press the No or Return key, then data collection start date is not reset and return to the data collection menu screen.

[6] Parts counter

Perform the copy count display, count clear, limit value setting and arbitrarily parts to be replaced setting to the data of the parts to be replaced (fixed/arbitrarily).

[Parts counter menu screen]

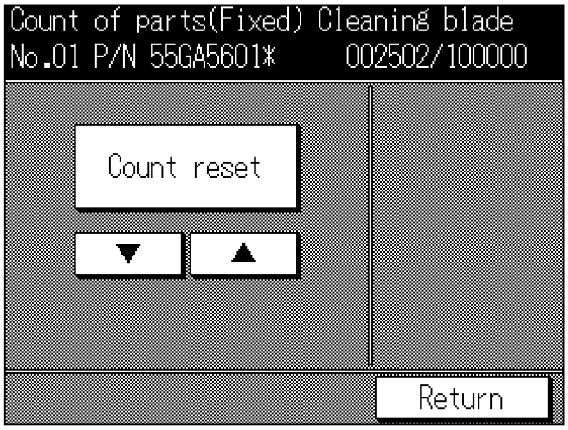


Parts counter Set
Select one of following items

1. Copy count display and count reset by parts to be replaced (fixed)

Set the parts name of the fixed parts to be replaced (Fixed), parts No. and copy count display, and count reset.

[Copy count screen by parts to be replaced (Fixed)]



Count of parts(Fixed) Cleaning blade
No.01 P/N 55GA5601* 002502/100000

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 4.Collecting data key.
3	**[Parts Counter Menu Screen]** Press the 2.Date count data key.
4	**[Copy count screen by parts to be replaced (Fixed)]** Press ▲, ▼ key to select the data.
5	Press the Count reset key.
6	**[Count reset screen by parts to be replaced (fixed)]** Press the Yes key to clear the copy count. Press the No or Return key, then the copy count is not reset and return to the copy count screen by parts to be replaced.

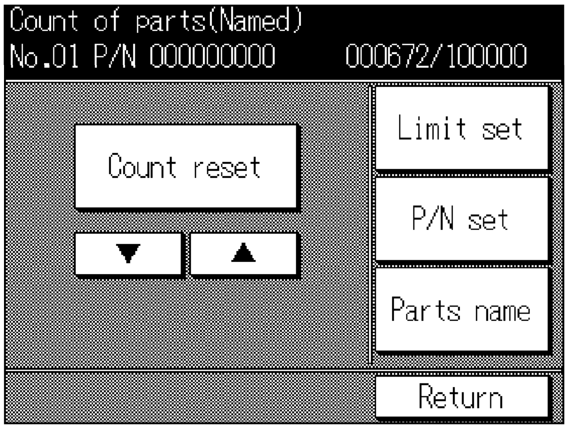
[< List of Parts to be Replaced (fixed) >

No.	Unit	Parts name
1	Drum cartridge (include charging corona unit)	Cleaning blade
2		Charging wire
3		Charging control plate
4		Cleaner mount assembly
5		Charging wire cleaning block (C)
6		Charging wire cleaning block (D)
7		Transfer/Separation charging wire
8		OPC drum
9		Separation claw
10	Developing unit	Developer
11	Paper feed unit	(Tray: 1) –
12		(Tray: 1) –
13		(Tray: 1) –
14		(Tray: 2) Separation rubber
15		(Tray: 2) Paper feed rubber
16		(Tray: 2) Double feed prevention rubber
17		(Tray: 3) Separation rubber
18		(Tray: 3) Paper feed rubber
19		(Tray: 3) Double feed prevention rubber
20		(Tray: 4) Separation rubber
21		(Tray: 4) Paper feed rubber
22		(Tray: 4) Double feed prevention rubber
23		(Tray: 5) Separation rubber
24		(Tray: 5) Paper feed rubber
25		(Tray: 5) Double feed prevention rubber
26	By-pass paper feed unit	(By-pass) Separation rubber
27		(By-pass) Paper feed rubber
28		(By-pass) Double feed prevention rubber
29	Fixing unit	Fixing cleaning roller
30		Fixing roller (A)
31		Fixing cleaning pad
32		Fixing roller (upper)
33		Fixing claw (upper)
34		Heat insulating sleeve
35		Fixing roller (lower)
36		Fixing claw (lower)
37		Fixing bearing (upper)
38		Bearing
39		Fixing bearing
40	Fixing unit	Fixing heater lamp 1
41		Fixing heater lamp 2
42	Machine inside	Toner filter
43	DF-311	Paper feed roller
44		Separation roller
45		Separation pad
46	FS-105	(Tray 2) Paper exit roller (A)
47		(Tray 3) Paper exit roller (A)
48		Staple unit (front)
49		Staple unit (rear)

2. Copy count display and count reset by parts to be replaced (Named; arbitrarily)

Set the limit value for the parts to be replaced, parts No., parts name setting, copy count display and count reset.

[Copy count screen by parts to be replaced (Named)]



Count of parts(Named)
No.01 P/N 000000000 000672/100000

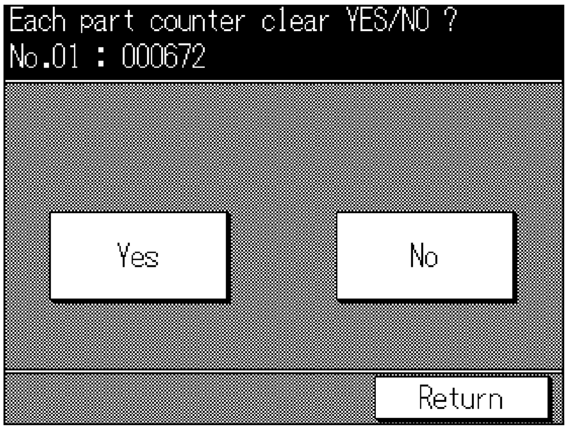
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 5.Parts counter key.
3	**[Parts counter menu screen]** Press the 2.Count of parts(Named) key.
4	**[Copy count screen by parts to be replaced (Named)]** Press the ▲ or ▼ to select the data to be set or changed.
5	Following items can be set below. Count reset: To clear the copy count. Limit set: To enter the limit value (6-digit). P/N set: To enter the parts number (9-digit). Parts name: To enter the parts name.
6	Press the Return key, then return to copy count screen by parts to be replaced.

< List of Parts to be Replaced (arbitrarily) >

No.	Count timing
1	When copy count (at the paper exit is completed)
2	When copy count (at the paper exit is completed)
3	When copy count (at the paper exit is completed)
4	When copy count (at the paper exit is completed)
5	When copy count (at the paper exit is completed)
6	When copy count (at the paper exit is completed)
7	When copy count (at the paper exit is completed)
8	When copy count (at the paper exit is completed)
9	When copy count (at the paper exit is completed)
10	When copy count (at the paper exit is completed)
11	When copy count (at the paper exit is completed)
12	When copy count (at the paper exit is completed)
13	When copy count (at the paper exit is completed)
14	When copy count (at the paper exit is completed)
15	When copy count (at the paper exit is completed)
16	When copy count (at the paper exit is completed)
17	When copy count (at the paper exit is completed)
18	When copy count (at the paper exit is completed)
19	When copy count (at the paper exit is completed)
20	When paper is fed from tray 5 (DB-208)
21	When paper is fed from by-pass tray
22	–
23	When paper is fed from tray 2
24	When paper is fed from tray 3
25	When paper is fed from tray 4
26	When paper is fed from ADU
27	When paper is exited from main body
28	When original is fed into RADF
29	When original is fed into RADF
30	When original is fed into RADF

(1) Count resetting method

[Count reset screen by parts to be replaced (Named)]



Each part counter clear YES/NO ?

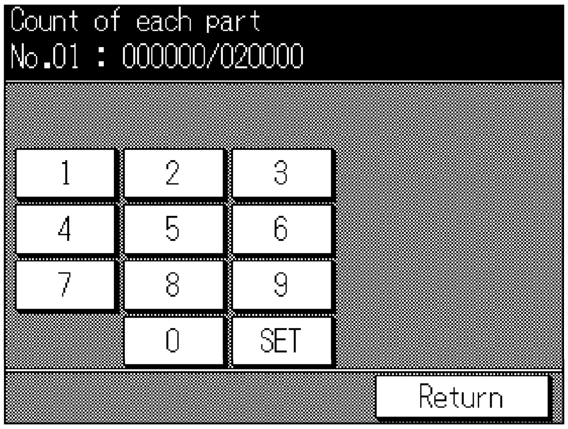
No.01 : 000672

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 5.Parts counter key.
3	**[Parts counter menu screen]** Press the 2.Count of parts(Named) key.
4	**[Copy count screen by parts to be replaced (Named)]** Press the ▲ or ▼ to select the data.
5	Press the Count reset key.
6	**[Count reset screen by parts to be replaced (Named)]** Press the Yes key to clear the copy count that has been selected. Press the No or Return key, then the copy count is not reset and return to the copy count screen by parts to be replaced (Named).

(2) Count limit setting method

Enter the new limit value from the numeric key on the screen.

[Count limit setting screen by parts to be replaced (Named)]



Count of each part

No.01 : 000000/020000

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 5.Parts counter key.
3	**[Parts counter menu screen]** Press the 2.Count of parts(Named) key.
4	**[Copy Count Screen by parts to be replaced (Named)]** Press the ▲ or ▼ to select the data to be set or changed.
5	Press the Limit set key.
6	**[Copy count limit setting screen by parts to be replaced (Named)]** Enter new value using the numeric keys.
7	Press the SET key to enter the limit value that has been entered.
8	Press the Return key to return to the copy count screen by parts to be replaced (Named).

Caution: When pressing the Return key without pressing the SET key, the setting is complete without changing a new limit value and returns to the copy count screen by parts to be replaced (Named).

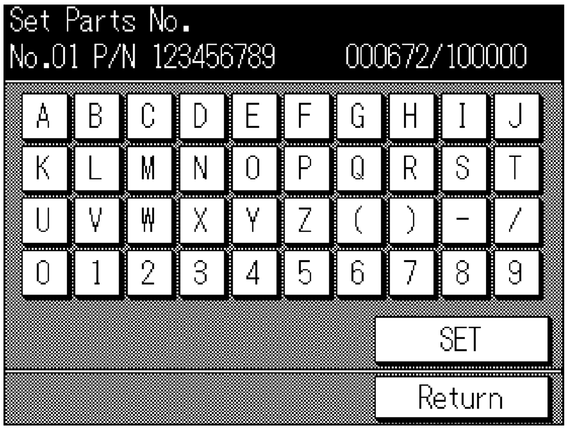
Reference:

The right side of the limit value will be marked as "*" if the copy count exceeds its limit value.

(3) Parts No. setting

Enter the new parts No. (9-digit) from the numeric and alphabet keys on the screen.

[Parts No. setting screen by parts to be replaced (Named)]



Set Parts No.

No.01 P/N 123456789 000672/100000

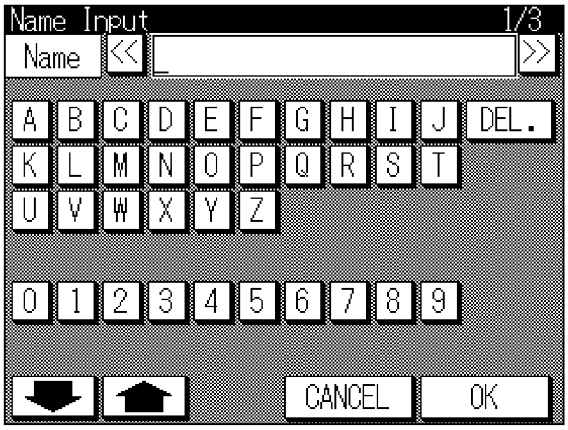
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 5.Parts counter key.
3	**[Parts counter menu screen]** Press the 2.Count of parts(Named) key.
4	**[Copy Count Screen by parts to be replaced (Named)]** Press the ▲ or ▼ to select the data to be set or changed.
5	Press the P/N set key.
6	**[Parts No. Setting Screen by parts to be replaced (Named)]** Enter new parts No. using the numeric and alphabet keys.
7	Press the SET key to enter the parts No. that has been entered.
8	Press the Return key to return to the copy count screen by parts to be replaced (Named).

Caution: When pressing the Return key without pressing the SET key, the setting is complete without changing a new parts No. and returns to the copy count screen by parts to be replaced (Named).

(4) Parts name setting

Enter the new parts name from the keys on the screen.

[Parts Name Setting Screen by parts to be replaced (Named)]



There are three screen in the input screen and are changed with ⬇, ⬆ key.

- Alphabet (a capital letter), numeric number
- Alphabet (a small letter), numeric number
- Symbol, numeric number

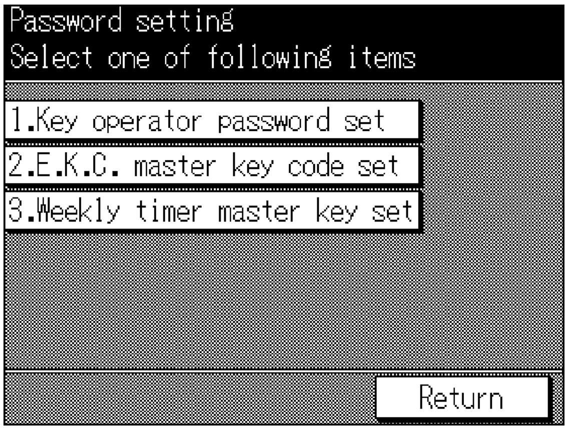
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 5.Parts counter key.
3	**[Parts counter menu screen]** Press the 2.Count of parts(Named) key.
4	**[Copy Count Screen by parts to be replaced (Named)]** Press the ▲ or ▼ to select the data to be set or changed.
5	Press the P/N set key.
6	**[Parts Name Setting Screen by parts to be replaced (Named)]** Enter new parts name using the keys on the screen.
7	Press the OK key to enter the parts name that has been entered. *1
8	Press the CANCEL key to return to the copy count screen by parts to be replaced (Named).

*1: When pressing the CANCEL key without pressing the OK key, the setting is completed without setting a parts name and returns to the copy count screen by parts to be replaced (Named).

[7] Password setting

This function sets the password to enter each mode.
In the 25 mode menu screen, select the [6. Password setting], then appear the password setting menu screen will appear. Select the password to be adjusted/entered in this screen.

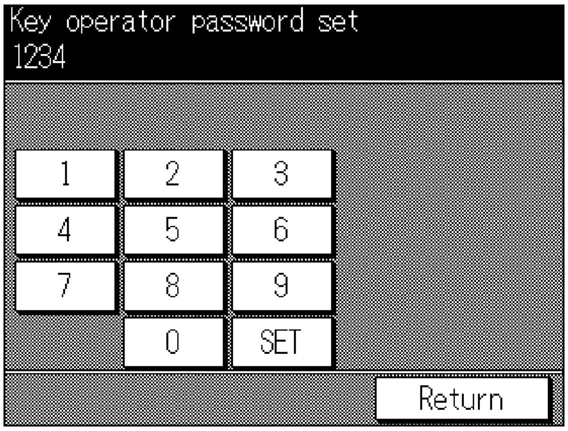
[Password setting menu screen]


Password setting
Select one of following items
1.Key operator password set
2.E.K.C. master key code set
3.Weekly timer master key set
Return

1. Setting Key Operator Password

This function sets the password to enter the key operator mode.

[Key operator password setting screen]


Key operator password set
1234
1
2
3
4
5
6
7
8
9
0
SET
Return

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 6.Password setting key.
3	**[Password Setting Menu Screen]** Press the 1.Key operator password set key.
4	**[Key operator password setting screen]** Enter 4-digit new password from the numeric key.
5	Press the SET key to set the password that has been entered.
6	Press the Return key to return to the password setting menu screen.

Caution: When pressing the Return key without pressing the SET key, the setting is complete. However the new password will not be entered and the password setting menu screen will return.

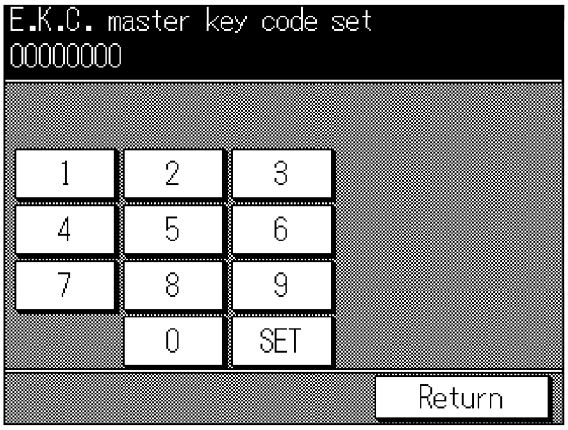
Reference:

When setting a password to “0000”, the key operator mode can be used without a password.

2. Setting the EKC Master Key Code

This function sets the EKC master key code.

[EKC master key code setting screen]



E.K.C. master key code set
00000000

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 6.Password setting key.
3	**[Password Setting Menu Screen]** Press the 2.E.K.C. master key code set key.
4	**[EKC master key code setting screen]** Enter 8-digit new EKC master key code using the numeric key.
5	Press the SET key to enter the EKC master key code that has been entered.
6	Press the Return key to return to the password setting menu screen.

Caution: When pressing the Return key without pressing the SET key, the setting is complete without changing a new EKC master key code and returns to the password setting menu screen.

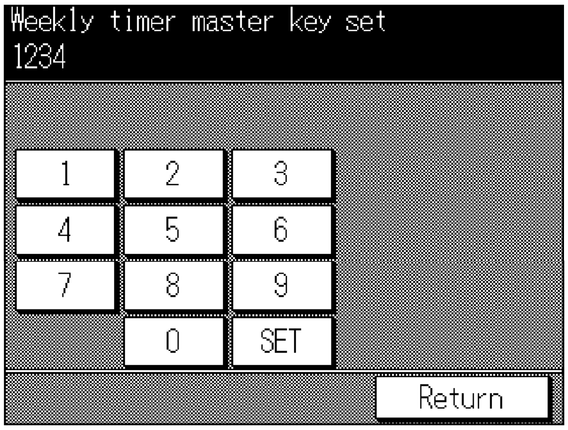
Reference:

When setting the EKC master key code to "00000000", the EKC setting mode can be used without a password (EKC master key code).

3. Setting the Weekly Timer Master Key Code

This function sets the weekly timer master key code required for entering the various weekly timer set mode.

[Weekly timer master key code setting screen]



Weekly timer master key set
1234

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 6.Password setting key.
3	**[Password Setting Menu Screen]** Press the 3.Weekly timer master key set key.
4	**[Weekly timer master key code setting screen]** Enter 4-digit new weekly timer master key code using the numeric key.
5	Press the SET key to enter the weekly timer master key code that has been entered.
6	Press the Return key to return to the password setting menu screen.

Caution: When pressing the Return key without pressing the SET key, the setting is complete without changing a new weekly timer master key code and returns to the password setting screen.

Reference:

When setting the master key code to "0000", the weekly timer mode can be used without a password.

[8] Setting Phone Number of the Service Center

This function displayes the phone and fax numbers of the service center which is indicated on the screen if a service call is required.

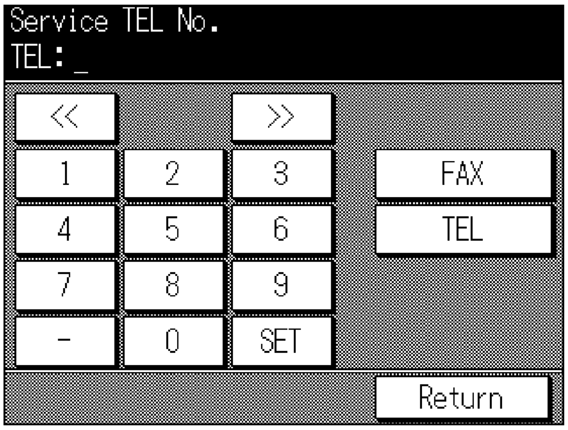
This function is not related to KRDS functions. It is designed only for indicating the data on the screen.

1. Setting phone and fax number of the service center

Select [7. Service TEL No.] in the 25 Mode Screen.

Service Center Number Setting Screen will appear.

[Service center number setting screen]



Service TEL No.

TEL: _

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 7.Service TEL No. key.
3	**[Service center number setting screen]** Press the TEL key to set the phone number and the FAX key to set the FAX number, and input the number (Max. 16-digit) using the numeric keys on the screen.
4	When input has been mistaken, rewrite it after moving the cursor with << or >> key, or delete all with the Stop/clear button to input again.
5	Press the SET key to enter the number that has been entered.
6	Press the Return key to return to the 25 mode menu screen.

Caution: When pressing the Return key without pressing the SET key, the setting is complete. However the new phone number will not be entered and the 25 mode menu screen will return.

[9] Setting the Serial Number

This function is used to display, set and change the serial number of the main body or optional units.

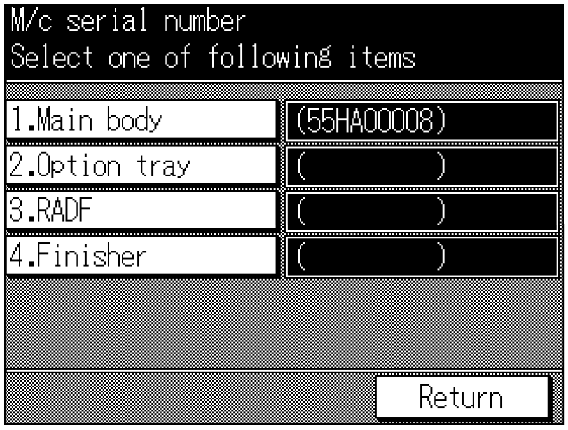
The serial numbers can be read from KRDS.

1. Serial number display procedure

Select [8. M/c serial number] in the 25 Mode Screen. The serial number setting screen will appear.

The item name and serial number are displayed on the serial number setting menu screen. Each serial number is displayed at the right side of the each unit.

[Serial Number Setting Screen]



M/c serial number

Select one of following items

1.Main body (55HA00008)

2.Option tray ( )

3.RADF ( )

4.Finisher ( )

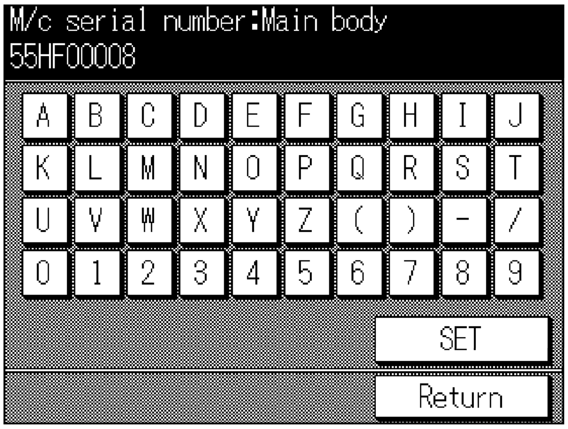
Press the Return key to end setting and return to the 25 mode menu screen.

Caution: If the unit (option) is not installed, the serial number is not displayed.

2. Setting and changing serial number

On the serial number setting screen, select the desired item, then each serial number setting screen will appear.

[Serial number setting screen]



M/c serial number:Main body
55HF00008

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 8.M/c serial number key.
3	**[Serial number setting menu screen]** Press the key corresponding to the desired item on the screen.
4	**[Serial number setting screen]** Enter the 9-digit serial number from the alphabet and numeric keys on the screen and then press the SET key to enter the number that has been entered.
5	Press the Return key to return to the serial number setting menu screen. *1
6	When changing the serial number of other item, repeat steps 3 to 5.
7	Press the Return key to return to the 25 mode menu screen.

*1: When pressing the Return key without pressing the SET key, the setting is complete. However the new serial number will not be entered and the serial number setting menu screen will return.

[10] Displaying the ROM Version

Display ROM version mounted to the machine.

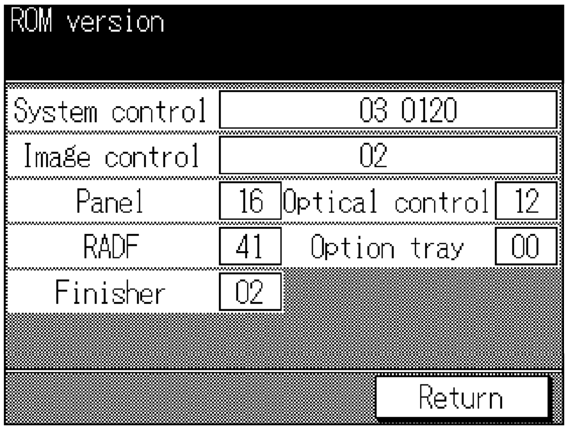
1. ROM version viewing method

In the 25 mode menu screen, select [9. ROM version], then appear the ROM version display screen will appear.

The item name and ROM version are displayed on the ROM version display screen. Each serial number is displayed at the right side of each item.

When there is an option not installed, the applicable position is a blank.

[ROM Version Display Screen]



ROM version

System control 03 0120
Image control 02
Panel 16 Optical control 12
RADF 41 Option tray 00
Finisher 02

Press the Return key to end this screen and return to the 25 Mode Screen.

[11] KRDS Setting

This function selects whether to use KRDS.

KRDS allows the copy machine to call up the host computer periodically and also when there is an abnormality. Also data in the copier can be changed from the host computer.

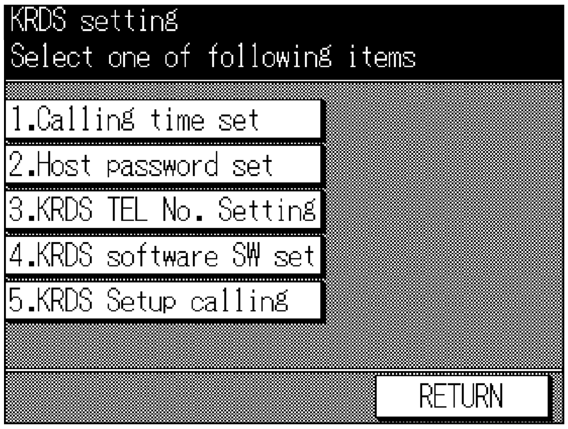
KRDS can execute the above functions for the following data:

a. Data on the copier's status such as total and PM count.
b. Data on the frequency of the partial copier such as RADF paper feed count.
c. Data on the copier's error status such as SC (F) /JAM occurrence point and count.
d. Data on the various adjustments

To use KRDS, set up as follows:

1. Initialize KRDS memory.
2. Set the type of modem and line.
3. Enter host password.
4. Set phone number.

△3 **[KRDS Setting Menu Screen]**



KRDS setting
Select one of following items

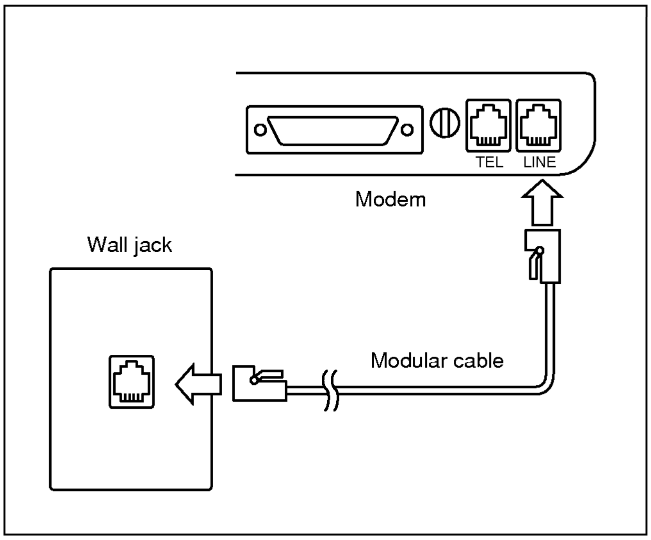
[12] KRDS Set Up

1. KRDS set up item

KRDS set up procedure

Step	Operation procedure
1	Turn off the modem and connect to the copier using a modem cable (RS-232C, 25P-25P straight cable) and wall jack using a modular cable to the modem.
2	Setting the KRDS connection recognition (25 mode → 1.Software SW) Set copier software DIPSW 12-6 (KRDS connection recognition) to "1".
3	Initialize KRDS memory. (47 mode → 1 5 P 9 8 P → Start print button ON)
4	Set KRDS software SW. (25 mode → 10.KRDS setting → 4.KRDS software SW set (Select type of modem and dial mode) Select the type of modem from the bit pattern 0 to 6 of the KRDS software SW No.1 and dial mode from the bit pattern 7.
5	Host password setting. (25 mode → 10.KRDS setting → 2.Host password set) (Refer to *1 and *2)
△3 6	KRDS phone number setting. (25 mode → 10.KRDS setting → 3.KRDS TEL No. Setting) (Refer to *3)
7	Turn off the SW1 (main power) and SW2 (sub power) of the copier.
8	Turn on the power switch of the modem.
9	Turn on the SW1 (main power) of the copier.
10	Check the set up flag setting condition. (25 mode → 10.KRDS setting → 4.KRDS software SW set → check that the data on the switch No.33 and bit No.0 indicates "0" (not yet).
11	Preform KRDS set up calling. (25 mode → 10.KRDS setting → 5.KRDS Setup calling)
12	Press the Start key to start set up.
13	Check the finishing of set up. (25 mode → 10.KRDS setting → 4.KRDS software SW set → Completes if the data on the switch No.33 and bit No.0 indicates "1" (finished).
14	Turn off the SW1 (main power) and SW2 (sub power) of the copier.

*1: Host password must be 5-digit.
*2: Host password 1 must be specified.
*3: For both the copier and the host side, copier phone number and host phone number 1 must be specified.
*4: Refer to the manual of the modem about specifications for connecting with the modular cable.



2. Setting the KRDS connection recognition.

(1) Plug the power cord of the copier to the outlet. (When the SW1 (main power) and SW2 (sub power) of the copier remain off.)
(2) Turn on the SW1 (main power) when the SW2 (sub power) remains off.
(3) Turn on the SW2 (sub power) while pressing $\boxed{2}$ and $\boxed{5}$ of the copy quantity setting buttons simultaneously.
(4) Select the $\boxed{\text{1.Software SW}}$ on the 25 mode menu screen.
(5) Select the bit No.6 of the switch No.12, and then press the $\boxed{\text{ON}}$ key.

$\boxed{\text{ON}}$: KRDS connect
$\boxed{\text{OFF}}$: KRDS not connected

Caution: If the copier software DIPSW 12-6 (KRDS recognition) is not selected to “1”, the menu of the KRDS can not be selected.

3. Initializing KRDS memory

(1) Turn off the SW2 (sub power) when the SW1 (main power) remains on.
(2) Turn on the SW2 (sub power) while holding down $\boxed{4}$ and $\boxed{7}$ of the copy quantity setting buttons simultaneously.
(3) Press the start print button after pressing the copy quantity setting button $\boxed{1}$, $\boxed{5}$ and $\boxed{P}$ button, then $\boxed{9}$, $\boxed{8}$, finally $\boxed{P}$ button again.

```
I/O check mode
< 15 - 98 >   IN: – – OUT: NOW
```

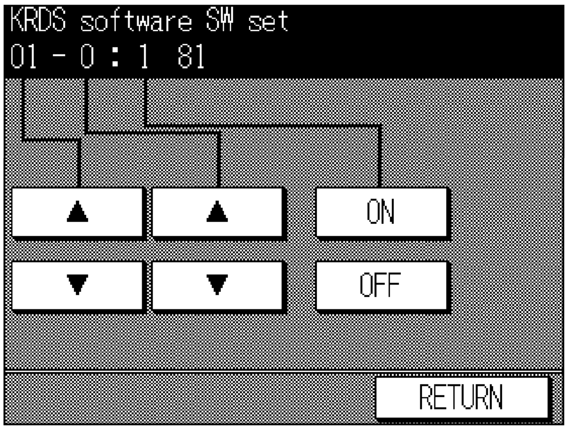
(4) “NOW” indication will be changed to “FIN” on the message display.
    * If takes approximately 20 minutes to complete if the machine is equipped with the memory card.
(5) Turn off the SW2 (sub power).

4. Setting KRDS software SW

This function allows adjustment of the KRDS software switches.

Caution: Adjust the software switch while checking the switch and bit number since the memory is rewritten every time the bit data (1 or 0) is changed.
Any bit data that has been incorrectly changed must be returned to the original data.

△3 **[KRDS software SW set screen]**

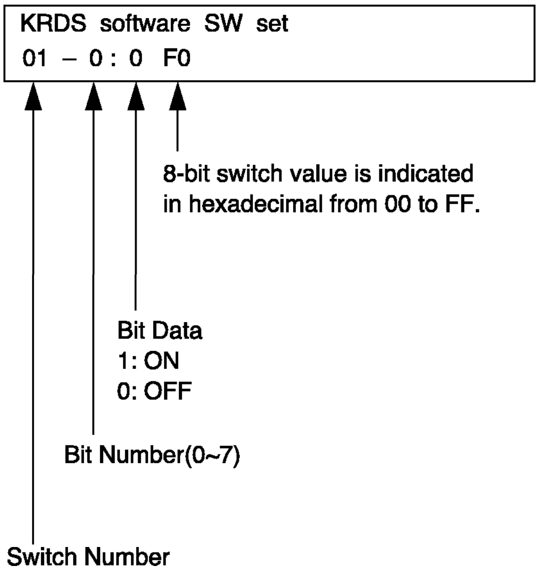


KRDS software SW set
01 - 0 : 1 81

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting .
3	**[KRDS setting menu screen]** Press the 4.KRDS software SW set.
4	**[KRDS software SW set screen]** Use the ▲ or ▼ key to set the switch number. (Refer to *1)
5	Use the ▲ or ▼ key to set the bit number. (Refer to *1)
6	Press the ON or OFF key to set the bit data.
△3 7	Press the RETURN key to end the setting.

*1:

- The bit of the switch is written in the non-volatile RAM every time it is changed.
- The numbers shown in the message area are defined as follows:



KRDS software SW set
01 – 0 : 0 F0

8-bit switch value is indicated in hexadecimal from 00 to FF.

Bit Data
1: ON
0: OFF

Bit Number(0~7)

Switch Number

For each switch function, refer to “List of KRDS Software DIP SW”.

5. Setting type of modem and line

(1) Using the switch No. 01, enter the modem and line data into the bits 0 to 7, referring to the following table.

<If telephone line type is “Pulse”>

Bit No. Modem initialization command	7	6	5	4	3	2	1	0	*
AT&FE0Q0V1X0S0=1&S0	0	0	0	0	0	0	0	1	01
AT&FE0Q0V1X0S0=1&S0&D2&C1	0	0	0	0	0	0	1	0	02
AT&FE0Q0V1X0S0=1&S0%E0	0	0	0	0	0	0	1	1	03
AT&FE0Q0V1X0S0=1&S0&D2	0	0	0	0	0	1	0	0	04
AT&FE0Q0V1X0S0=1&S0&M5	0	0	0	0	0	1	0	1	05

<If telephone line type is “Tone”> △3

Bit No. Modem initialization command	7	6	5	4	3	2	1	0	*
AT&FE0Q0V1X0S0=1&S0	1	0	0	0	0	0	0	1	81
AT&FE0Q0V1X0S0=1&S0&D2&C1	1	0	0	0	0	0	1	0	82
AT&FE0Q0V1X0S0=1&S0%E0	1	0	0	0	0	0	1	1	83
AT&FE0Q0V1X0S0=1&S0&D2	1	0	0	0	0	1	0	0	84
AT&FE0Q0V1X0S0=1&S0&M5	1	0	0	0	0	1	0	1	85

△3 **Example:**
If the initialization command for the modem you are using is AT&FE0Q0V1X0S0=1&S0 and you have a pulse-dial telephone line, enter the data for bits 7 to 0 as 00000001:
In hexadecimal <*>, the value is expressed as 01. Be sure to verify with the above charts whether or not the hexadecimal <*> output corresponds with the model being used.

Reference:
This machine has a telephone (modem) line type automatic recognition setting function.

KRDS Software DIP SW:
Switch No.38 and bit No.0
Data 0: off (manual setting)
1: on (line type automatic recognition) (default)

As a result, if this switch is at “1”, Bit No. 7 of Switch No. 1 can be either “0” or “1”.

(2) List of KRDS Software DIP SW

No.		Function	MSB	Bit pattern						LSB	Description	Default value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
1	0 - 6	Select modem		0	0	0	0	0	0	0	No setting (No data is sent to modem.)	81 △3
		△3		0	0	0	0	0	0	1	AT&FE0Q0V1X0S0=1&S0	
				0	0	0	0	0	1	0	AT&FE0Q0V1X0S0=1&S0&D2&C1	
				0	0	0	0	0	1	1	AT&FE0Q0V1X0S0=1&S0%E0	
				0	0	0	0	1	0	0	AT&FE0Q0V1X0S0=1&S0&D2	
		△3		0	0	0	0	1	0	1	AT&FE0Q0V1X0S0=1&S0&M5	
				1	1	1	1	1	1	1	Manual setting (3 to 24 byte data is sent to modem.)	
	7	Dial mode △3	0								Pulse dial	
			1								Tone dial	
2	0	Data character length										61
										1	8 bit (fixed)	
	1 - 2	Parity and stop bit						0	0		No parity, stop bit 1 (fixed)	
											Even number of parity, stop bit 1	
											Odd number of parity, stop bit 1	
											No parity, stop bit 2	
	3	Reserve					Don't care					
	4 - 7	Baud rate	0	0	1	1					1200 bps	
			0	1	0	0					2400 bps	
			0	1	0	1					4800 bps	
			0	1	1	0					9600 bps	
			0	1	1	1					19200 bps	
3	0	Local echo									No setting	57
										1	E0	
	1	Result code							0		No setting	
									1		Q0: Exist	
	2	Result code form (displayed result)						0			No setting	
								1			V1: Word	
	3	Set DCD signal operation (carrier detect)					0				No setting	
							1				&C1: ON only when the carrier is detected.	
	4 - 5	Set DSR signal operation			0	0					No setting	
					0	1					&S0: Keep ON	
					1	0					&S1: ON during online	
					1	1					&S2	
	6	Check DSR signal		0							off	
				1							on	
	7	Check DCD signal	0								off (fixed)	
			1								on	

No.		Function	MSB	Bit pattern						LSB	Description	Default value
byte	bit		7	6	5	4	3	2	1	0		(Hexadecimal)
4	0 - 1	Set DTR signal operation							0	0	No setting	10
									0	1	&D0	
									1	0	&D1	
									1	1	&D2	
	2 - 3	Speaker control					0	0			No setting	
							0	1			M0: Keep off	
							1	0			M1: ON until communication starts	
							1	1			M2	
	4 - 6	Display speed when connection is completed and dial/busy tone is detected.		0	0	0					No setting	
				0	0	1					X0: No indication of communication speed	
				0	1	0					X1: Indication of communication speed	
				0	1	1					X2: Indication of communication speed; Detect dial tone	
				1	0	0					X3: Indication of communication speed; Detect busy tone	
				1	0	1					X4: Indication of communication speed; Detect dial and busy tone	
				1	1	0					non	
				1	1	1					non	
	7	Reset modem (This is set prior to shipping.)	0								No setting	
			1								&F: This is set prior to shipping.	
5	0 - 7	Arbitrary command registration area 1 (ASCII data)									Send ASCII data specified in this area to modem	00
6	0 - 7											
7	0 - 7											
8	0 - 7	Arbitrary command registration area 2 (ASCII data)										
9	0 - 7											
10	0 - 7											
11	0 - 7	Arbitrary command registration area 3 (ASCII data)										
12	0 - 7											
13	0 - 7											
14	0 - 7	Arbitrary command registration area 4 Command free setting										
15	0 - 7											
16	0 - 7											
17	0	Set S register (bit 0 - 7)								0	No setting	01
		S0: Automatic receive ring count								1	S0=: Effective data	
	1	S6: Wait time from off hook to dial start							0		No setting	
									1		S6=: Effective data	
	2	S7: Off hook limit timer						0			No setting	
								1			S7=: Effective data	

No.		Function	MSB	Bit pattern						LSB	Description	Default value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
17	3	S8: Dial stop time (sec.)					0				No setting	01
							1				S8=: Effective data	
	4	S9: Carrier recognize time				0					No setting	
						1					S9=: Effective data	
	5	S10: Allowable carrier stop time			0						No setting	
					1						S10=: Effective data	
	6	S11		0							No setting	
				1							S11=: Effective data	
	7	Reserve	Don't care									
18		S0 data	00 - FFH								01H (1)	01
19		S6 data	00 - FFH								03H (3)	03
20		S7 data	00 - FFH								1EH (30)	1E
21		S8 data	00 - FFH								03H (3)	03
22		S9 data	00 - FFH								06H (6)	06
23		S10 data	00 - FFH								0EH (14)	0E
24		S11 data	00 - FFH								5FH(95)	5F
25		Timer 1	00 - FFH								20H (32) x 1sec	20
26		Timer 2	00 - FFH								40H (64) x 1sec	40
27		Timer 3	00 - FFH								0AH (10) x 100ms	0A
28		Timer 4	00 - FFH								20H (32) x 100ms	20
29		Timer 5	00 - FFH △3								1EH (30) x 1sec	1E
30		Retry data; Timer 6	00 - FFH								FFH (255) x 5ms	FF
31	0	Call when SC error occurs								0	disable	DF
										1	enable	
	1	Call specify date							0		disable	
									1		enable	
	2	Call parts replace date						0			disable	
								1			enable	
	3	Call drum replace date					0				disable	
							1				enable	
	4	Call regular service date				0					disable	
						1					enable	
	5				Don't care							
	6	Call regular transmit date		0							disable	
				1							enable	
	7	Select regular transmit (Time and count) △3	0								time	
			1								counter	

No. byte	bit	Function	MSB 7	6	5	4	3	2	1	LSB 0	Description	Default value (Hexadecimal)
32 △3	0	Call when optional configuration is changed								0	disable	00
										1	enable	
	1	Report of toner replenishment							0		disable	
									1		enable	
	2	Report of JAM occur frequently						0			disable	
								1			enable	
	3 - 7	Reserve	Don't care									
33	0	Set up flag	Don't care									0A △3
										0	not yet	
										1	finished	
	1 - 2	Radial interval						0	0		1 min.	
								0	1		3 min.	
								1	0		5 min.	
								1	1		7 min.	
	3 - 4	Radial count △3				0	0				0	
						0	1				5	
						1	0				10	
						1	1				No limit	
	5 - 6	Reserve		Don't care								
	7	Line feed control (when initializing modem)	0								CR/LF: LF exist	
			1								CR: No LF	
34	0 - 1	Call JAM date (main body) Valid copy quantity							0	0	Copy quantity: level 1	55
									0	1	Copy quantity: level 2	
									1	0	Copy quantity: level 3	
									1	1	Copy quantity: level 4	
	2 - 3	Call ADF JAM date Valid original feed quantity					0	0			Original feed quantity: level 1	
							0	1			Original feed quantity: level 2	
							1	0			Original feed quantity: level 3	
							1	1			Original feed quantity: level 4	
	4 - 5	Call JAM date MCBJ setting			0	0					MCBJ: level 1	
					0	1					MCBJ: level 2	
					1	0					MCBJ: level 3	
					1	1					MCBJ: level 4	
	6 - 7	Call JAM date MOBJ setting	0	0							MOBJ: level 1	
			0	1							MOBJ: level 2	
			1	0							MOBJ: level 3	
			1	1							MOBJ: level 4	
35		Reserve										00
36		Reserve										
37		Reserve										

No.		Function	MSB	Bit pattern						LSB	Description	Default value (Hexadecimal)
byte	bit		7	6	5	4	3	2	1	0		
38	0	Line type automatic recognition								0	off	01
										1	on	
	1	MSAD connection ⚠3							0		not connect	
									1		connect	
	2 - 5	Reserve			Don't care							
	6	PM limit data length		0							Upper 2-digit fixed (for host)	
				1							All 6-digit (for host)	
	7	Regular transmit communication	0								Call back communication	
		Sequence control	1								No call back communication	
39	0 - 1	Reserve							Don't care			00
	2	RS-232 line error						0			copy enable	
		K01_XX (refer to 1*)						1			copy disable	
	3	Modem AT command error					0				copy enable	
		K02_XX (refer to 1*)					1				copy disable	
	4	Reserve				Don't care						
	5	Force copy stop			0						disable	
		(at host side)			1						enable	
	6 -7	Reserve	Don't care									
40	0	Force copy stop								0	disable	00
		(at terminal equipment side)								1	enable	
	1	Jam history data clear							0		disable	
									1		enable	
	2 - 7	Reserve	Don't care									

*1: For more detailed information, refer to error code list.

*1: Error code list

Error Code	Contents	Countermeasure
K00_00	Connection NG.	Redial, repeat reception standby.
K00_01	No response from other party. (No detection of start text from host after establishing connection.)	Redial, repeat reception standby.
K00_02	Because copying is taking place, it is impossible to write to the non-volatile RAM and the line is cut.	Temporarily stop copying.
K00_03	Password does not match.	Check password.
K00_04	Serial number does not match.	Check serial number.
K00_05	Syntactical error.	Redial, repeat reception standby.
K00_06	Write-in indication on an item for which write-in is impossible.	Re-operation on host side.
K00_07	Unread item error.	Re-operation on host side.
K00_08	Signal reception time-out after detection other party response.	Redial, repeat reception standby.
K00_09	Serial number registration completed.	Check serial number.
K00_10	Communications error due to generation of carrier OFF.	Redial, repeat reception standby.
K00_11	Dial tone is not detected within 5 seconds after setting of X2 and X4 commands.	Check connection of telephone line.
K00_12	Busy signal detected.	Redial.
K00_13	No tone detected for 5 seconds after input of @ command.	Redial, repeat reception standby.
K01_00	DTR went to OFF or in OFF state.	Check modem power source. Check RS-232C cable connection.
K01_01	Cannot open RS-232C.	Turn power on copier OFF and ON.
K01_02	Cannot close RS-232C.	Turn power on copier OFF and ON.
K01_03	Response time-out from RS-232C task.	Check modem power source. Check RS-232C cable connection.
K02_00	AT command error.	Turn power on copier OFF and ON. Possibility of modem malfunction or software bug.
K02_01	Initializing NG (MODEM). Example: Modem initializing command no good.	Check modem power source. Check RS-232C cable connection.

6. Setting host password

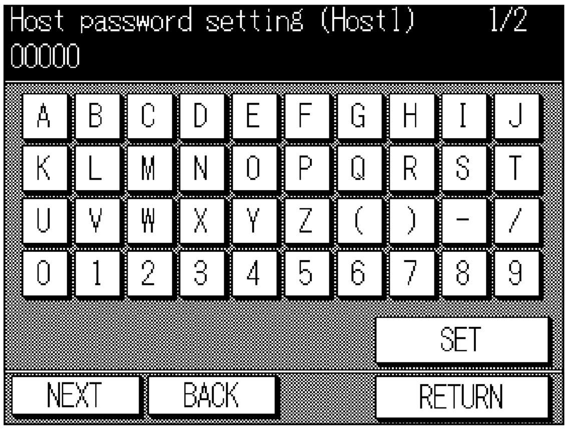
This function sets the host password.

(1) Screen selection

Select the 10.KRDS setting in the 25 mode menu screen to display the KRDS setting menu screen as an initial screen.

Then select the 2.Host password set to display the host password setting screen.

[Host password setting screen]


Host password setting (Host1) 1/2

00000

(2) Setting method

a. Two patterns can be used to set KRDS host password. The entry screen, screen contents and setting method for each pattern are all the same. Each message, however, is different.

b. Press the NEXT or BACK key to 2change the screen.

c. Enter the host password, 5-digit number or alphabet, with the numeric key on the screen and press the SET key.

d. The firstly entered number or alphabet will be shifted to the left end.

e. This password has been set to “00000” prior to shipping.

f. After inputting the password, it the NEXT, BACK or RETURN key is pressed before pressing the SET key, the data that has been entered is canceled.

g. Press the SET key, and then press the RETURN key to set the entered password. The screen will return to the KRDS setting menu screen.

* Note that the host password setting (Host1) must be performed.

* • When controlling with a single host unit, nothing is set to the host password setting (Host2).

• When controlling with 2 host units, set a password different from (Host1) to the host password setting (Host2).

Example of operation with 2 host units.

Host (1): Service
(Emergency call address host).
Host (2): Service
(Periodical transmission address host)

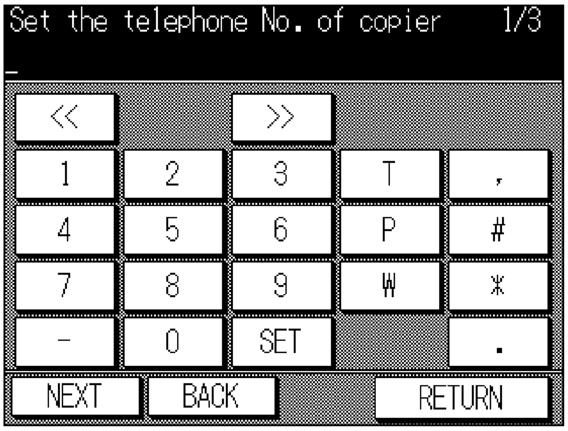
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3	**[KRDS setting menu screen]** Press the 2.Host password set.
4	**[Host password setting Screen]** Enter password consisting of number and alphabet.
5	Press the NEXT or BACK key to change the screen, then enter password (up to 2 patterns).
6	Press the SET key.
7	Press the RETURN to end the setting.

7. Setting the KRDS phone number

This function sets copier for KRDS and host phone number.

(1) Screen selection
Select the 10.KRDS setting in the 25 mode menu screen to display the KRDS setting menu screen as an initial screen.
△3 Then select the 3.KRDS TEL No. Setting to display the KRDS TEL NO setting screen.

△3 **[KRDS TEL NO setting screen]**


Set the telephone No. of copier 1/3

(2) Setting method
- a. Three patterns can be used to set KRDS phone number. The entry screen, screen contents and setting method for each pattern are all the same. Each screen, however, is different.
- △3 b. Press the NEXT or BACK key to change the screen.
- c. Enter the phone number, 15-digit or less number, with the numeric key on the screen and press the SET key.
- d. The entered number is displayed in the cursor section displayed in the line 2 of the message display area. The cursor shifts from left to right according to the entered.
If more than 15 digit is entered, the number of the 15 digit is rewritten.
- e. To reenter the phone number, press the Stop/clear button to clear the data then enter the correct number.
- f. If you wish to change the number of an arbitrary position, press the << or << key to move the cursor to the desired position and reenter.
- g. No data has been set for the second row of the message area prior to shipping.
- h. The keys except the numeric keys are defined as follows:
  - , Pause:
    Wait temporarily for self-dial feed. (2 -3 sec.)
  - W Wait:
    Wait for dial tone such as asynchronous, etc. (excluding sound guidance).
  - T Tone Dial:
    Indicate tone dial after this symbol
  - P Pulse Dial:
    Indicate pulse dial after this symbol
  - - Symbol to divide numbers:
    (This symbol is ignored when dialing.)
- △3 i. After inputting the password, it the NEXT, BACK or RETURN key is pressed before pressing the SET key, the data that has been entered is canceled.
- △3 j. Press the SET key, and then press the BACK key to set the entered number. The screen will return to the KRDS setting menu screen.

* • Note that the phone number setting (copier) and phone number setting (Host1) must be performed.
• When controlling with a single host, nothing is set to the phone number setting (Host2).

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3 △3	**[KRDS setting menu screen]** Press the 3.KRDS TEL No. Setting.
4	**[KRDS TEL NO Setting Screen]** Enter phone number (15-digit or less) consisting of number and alphabet with numeric key.
5 △3	Press the NEXT or BACK key to change the screen, then phone number (up to 3 patterns).
6	Press the SET key.
△3 7	Press the RETURN to end the setting.

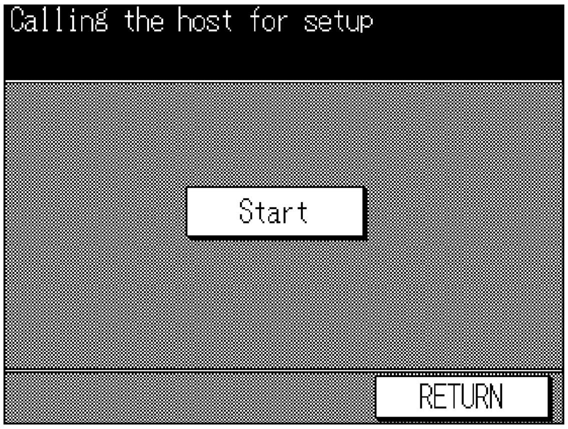
8. Calling KRDS set up

This function sends data for copier set up.

(1) Screen selection
Select the 10.KRDS setting in the 25 mode menu screen to display the KRDS setting menu screen.
Then select the 4.KRDS software SW set to display the KRDS software SW set screen.

△3 Check that the software DIP SW 33-0 is set to "0". After checking, press the RETURN key to return to the KRDS setting menu screen.
On the KRDS setting menu screen, select the 5.KRDS Setup calling to display the calling host for setup screen.

△3 **[Calling the host for setup screen]**



Calling the host for setup

Caution: If the KRDS software DIPSW 33-0 (Set up flag) is not selected to "0" (not yet). The KRDS setup calling screen can not be selected.

(2) Setting method
a. Press the Start key in the screen.
(a) Communication message

Calling the host for setup
Communicating

Caution: Do not turn OFF the power during communication.

(b) Completion message

Calling the host for setup
Communication completed

b. Turn off the power if no completion message is displayed in ten minutes.
Check that the host computer starting up correct, host phone number, cable connection, etc. then open to calling the host for setup screen again to press the Start key.

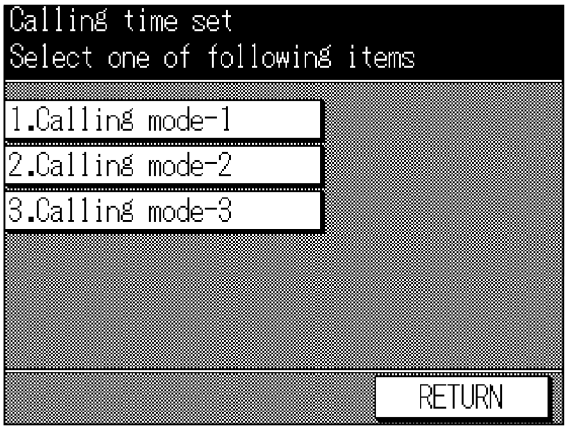
c. Turn off the power to end the operation.

Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3	**[KRDS setting menu screen]** Press the 4.KRDS software SW set.
4	**[KRDS software SW set screen]** Use the ▲ or ▼ key to select the switch number to "33" and bit number "0".
5	Check that bit data indicates "0". If not, set to "0" to press the OFF key.
6 △3	Press the RETURN key to return to the KRDS setting menu screen.
7	**[KRDS setting menu screen]** Press the 5.KRDS Setup calling.
8	**[Calling the host for setup Screen]** Press the Start key. Check the message on the screen.
9	Turn off the power to end the operation.

[13] Call setting menu mode

Select the 10.KRDS setting in the 25 mode menu screen to display the KRDS setting menu screen as an initial screen. Then select the 1.Calling time set to display the calling time set menu screen.

[Calling time set menu screen]



Calling time set
Select one of following items

Press the RETURN key to exit the calling time set menu screen and return to the KRDS setting screen.

Caution: This Host call setting always sets to calling to "Host 2". Therefore, setting of the "Host 2" telephone number and Host password must be needed in advance.

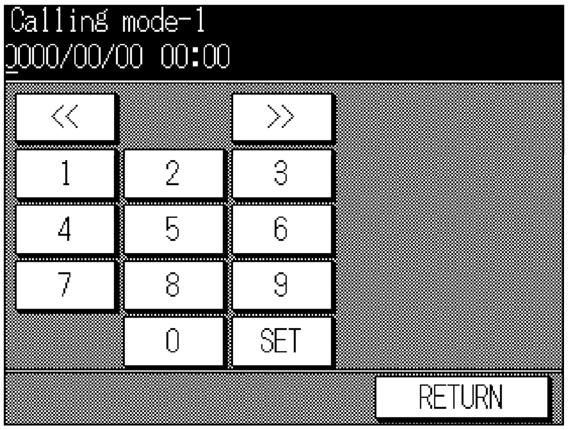
1. Setting designated date calling setting mode

This function sets designated date calling.

(1) Screen selection

Select the [1. Calling mode-1] (Setting designated date calling setting) in the calling time set menu screen to display the calling mode-1 (designated date calling) setting screen.

[Calling mode-1 (Designed date calling) setting screen]



Calling mode-1
0000/00/00 00:00

Press the RETURN key to exit the calling mode-1 (designed date calling) setting screen and return to the calling time set menu screen.

(2) Entering method

a. Enter year, month, day and time using the numeric key.
b. The cursor that indicates entering position will be appeared in the message indication area at line 2.
c. Using the <<, >> key and move the cursor to desired position.
d. If reenter the entered data, press the Stop/clear button to clear the entered data then enter the data again.
e. Enter year, month, day and time using the numeric key, then press the SET key.
f. Enter year, month, day and time as follows.
   - The year is entered by inputting 4-digit in the Christian era.
   - The month and day are entered by inputting 2-digit number. (Example: 1 is entered as 01.)
   - The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
   - The minute is entered by inputting 2-digit number. (Example: 1 is entered as 01.)
   - Example:
     at 1:00 p.m. of January 15, 1998 →
     1998/01/15 13:00
g. Press the SET key every time data for one item is entered and check the entered data.

△3 h. The screen will return to the calling time set menu screen if the RETURN key is pressed without pressing the SET key. In this case, no entered data will be changed.

△3 i. Press the SET key, and then the RETURN key to end setting. The screen will return to the calling time set menu screen.

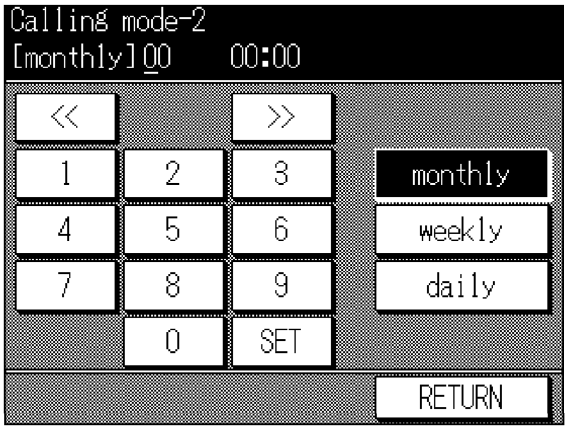
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3	**[KRDS setting menu screen]** Press the 1.Calling time set.
4	**[Calling time set menu screen]** Press the 1.Calling mode-1 (Setting designated date calling setting).
5	**[Calling mode-1 (Designed date calling) setting screen]** Enter year, month and day using the numeric key on the screen, then press the <<, >> key to move the cursor to entering position of time.
6	Enter time and minute using the numeric key on the screen, then press the SET key.
△3 7	Press the RETURN to end the setting.

2. Setting regular time call

The copier will call the host at the regular time specified.

(1) Screen selection
Select the 2.Calling mode-2 (regular time calling setting) in the calling time set menu screen to display the calling mode-2 (regular time calling) setting screen.

△3 **[Calling mode-2 (regular time calling) setting screen]**


Calling mode-2
[monthly] 00 00:00

△3 Press the RETURN key to exit the calling mode-2 (regular time calling) setting screen and return to the calling time set menu screen.

(2) Mode selecting method
- a. Select and press the desired mode in the monthly, weekly, dayly keys.
  There are three mode type (month, week, day) that can be set.
- b. The current selected mode is high lighted according to the mode key.
  At this time, the setting contents will be appeared in the message indication area at line 2.

(3) Mode setting method
Perform the operation in each mode as follows:
- a. Monthly mode
  - (a) Using the numeric key, enter the day, hour and minute.
  - (b) Press the SET key to enter the input data.
- b. If you wish to change the number of an arbitrary position, press the << or >> key to move the cursor to the desired position and reenter.
- c. If reenter the entered data, press the Stop/clear button to clear the entered data then enter the data again.

d. Weekly mode
(a) Using the numeric key, enter the day of the week, hour and minute.
(b) The day of the week is entered using the numeric key according to the following definitions.

1: Monday	2: Tuesday	3: Wednesday
4: Thursday	5: Friday	6: Saturday
7: Sunday		

(c) Press the SET key to enter the input data.

e. Daily mode
(a) Using the numeric key, enter the hour and minute.
(b) Press the SET key to enter the input data.

f. Common operation
△3 (a) The screen will return to the calling time set menu screen if the RETURN key is pressed without pressing the SET key. In this case, no entered data will be changed.
△3 (b) Press the SET key, and then the RETURN key to end setting. The screen will return to calling time set menu screen.
(c) Enter the number with the numeric key as follows:
- The month and day are entered by inputting 2-digit number. (Example: 1 is entered as 01.)
- The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
- The time is entered using 24 hour clock. (Example: 1:00p.m. is entered as 13.)
- Example:
  Monthly mode: 10 17:10
  Weekly mode: day 17:10
  Daily mode: 17:10

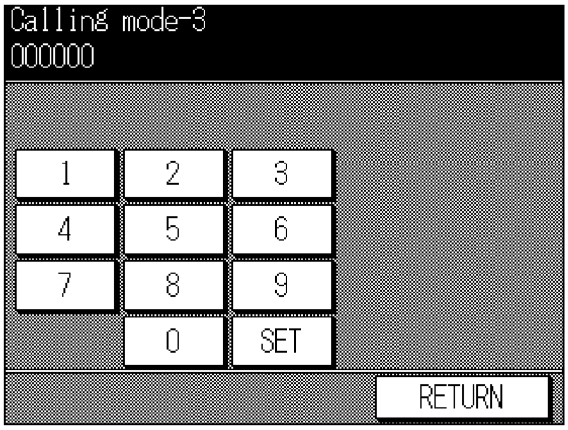
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3	**[KRDS setting menu screen]** Press the 1.Calling time set.
4	**[Calling time set menu screen]** Press the 2.Calling mode-2 (regular time calling setting).
5	**[Calling mode-2 (regular time calling) setting screen]** Press the any key in monthly, weekly, dayly keys.
6	Using the numeric key on the screen, enter the day, hour and minute. (Item that can be input differs from depend on the mode.)
7	Press the SET key.
△3 8	Press the RETURN to end the setting.

3. Setting regular count call

The copier will call the host at the regular count specified.

(1) Screen selection
Select the 3.Calling mode-3 (regular transmission interval according to copy count) in the calling time set menu screen to display the Calling mode-3 (regular count call) setting screen.

△3 **[Calling mode-3 (Regular count call) setting screen]**



△3 Press the RETURN key to exit the Calling mode-3 (Regular count call) setting screen and return to the calling time set menu screen.

(2) Setting method
a. Using the numeric key on the screen, enter 6-digit number, regular count value, then press the SET key.
b. To reenter the entered data, press the Stop/clear button to clear the entered data then enter the data again.
c. The entered numerical value is entered from the number of 4 digit. The number is displayed while shifting from right to left.
△3 d. The screen will return to the calling time set menu screen if the RETURN key is pressed without pressing the SET key. In this case, no entered data will be changed.
△3 e. Press the SET key then the RETURN key to end the setting. The screen will return to the calling time set menu screen.

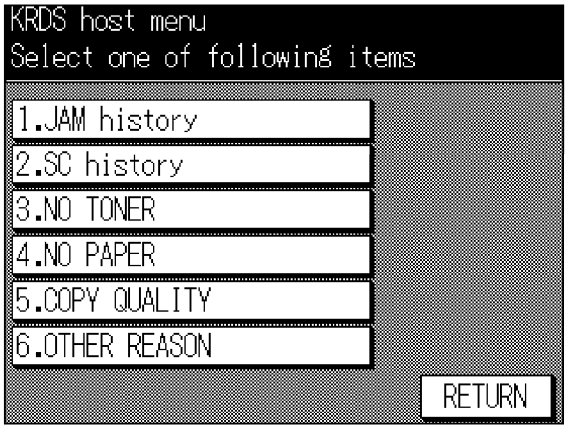
Step	Operation procedure
1	Enter the 25 mode.
2	**[25 mode menu screen]** Press the 10.KRDS setting.
3	**[KRDS setting menu screen]** Press the 1.Calling time set.
4	**[Calling time set menu screen]** Press the 3.Calling mode-3 (regular transmission interval according to copy count).
5	**[Calling mode-3 (Regular count call) setting screen]** Using the numeric key on the screen, enter number, regular count value, then press the SET key.
△3 6	Press the RETURN to end the setting.

[14] KRDS Host Call

If the machine is connected to a KRDS, it can call the host at the service center.

△3 a. Select the [JAM history] (JAM-related trouble call), [SC history] (SC-related trouble call), [No TONER], [No PAPER], [COPY QUALITY] (Copy quality-related trouble call) or [OTHER REASON] (Other call), depending upon the particular circumstances.

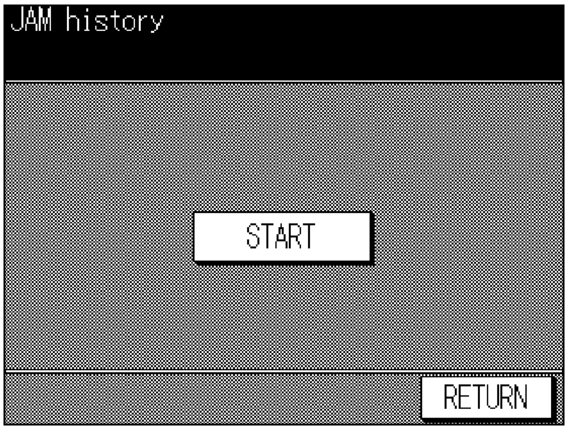
△3 **[KRDS host menu screen]**



KRDS host menu
Select one of following items

b. When the START key is pressed, the machine starts calling the host.

△3 **[KRDS host menu execution Screen]**



JAM history

Caution: Do not turn OFF the power during communication.

[15] KRDS Data List

△3 1. Common data

Classification	No.	Data	Data change Enable/ disable to write
Common data	1.1	Serial No.	Disable
	1.2	Date and time (local time)	○
	1.3	Regular call - time specified	○
	1.4	Regular call - count specified	○
	1.5	Specified date & time to transmit.	○

△3 2. Sales data

Classification	No.	Data	Data change Enable/ disable to write
Count data for sales 1	2.1	Total copy count	×
	2.2	Copy count by copy paper size	Can be reset
	2.3	EKC copy count	Can be reset
	2.6	A2/A3 double count	○
Limit count and adjust data	2.7	Total copy count start date	×
	2.8	EKC password	○
	2.9	EKC copy limit	○
	2.10	EKC copy limit control	○
	2.11	EKC user name	○
	2.12	EKC counter all reset	○
Count data for sales 2	3.1	Copy count 2 by EKC copy paper size (A3)	×
	3.2	Copy count 3 by EKC copy paper size (B4)	×
	3.3	Copy count 4 by EKC copy paper size (A4)	×
	3.4	Copy count 5 by EKC copy paper size (B5)	×
	3.5	Copy count 6 by EKC copy paper size (A5)	×
	3.6	Copy count 7 by EKC copy paper size (B6)	×
	3.7	Copy count 8 by EKC copy paper size (8.5x14)	×
	3.8	Copy count 9 by EKC copy paper size (8.5x11)	×
	3.9	Copy count 10 by EKC copy paper size (Bypass feed)	×
	3.10	Copy count 11 by EKC copy paper size (post card)	×

△3 3. Service data

Classification	No.	Data	Data change
			Enable/ disable to write
Error count data	4.1	No. of SC occurrence by each point	×
	4.2	No. of Jam occurrence by each point	×
Service count data	5.1	ADF/RADF paper feed count	×
	5.2	Copy count by each used mode	×
Process count data	6.1	Copy count by each part to be replaced	×
	6.2	Drum count	○
	6.3	Regular service count (PM)	○
	6.4	Developing count	○
	6.5	Other process count	×
Limit and adjust data	7.1	Copy limit by each part to be replaced	○
	7.2	Regular service cycle	○
	7.3	Regular service count start date	○
Count data for sale 2	8.1	Host password	○
	8.2	Phone number	○
	8.3	Optional machine composition	×
	8.4	ROM version report	×
	8.5	Machine adjust data 2 (Key operator mode)	○
	8.6	Machine adjust data (25 / 36 mode)	○
	8.7	KRDS memory switch data	○
	8.8	User operation setting	○
	8.9	Image processing adjust	○
Extra count data	9.1	Jam history record (100 occurrences)	×
	9.2	Special part to be replaced copy count	×
	9.3	Optional machine serial number	×
	9.4	Part number to be replaced	×
	9.5	Name of part to be replaced	×

[16] ISW Setting

Refer to the chapter “ISW”.

Reference

ASCII is 1 byte code specified by ANSI.

It enables to indicate control code, alphabet and number.

Decimal number	Binary number	Hexadecimal number	Character	Decimal number	Binary number	Hexadecimal number	Character
0	0000 0000	0		32	0010 0000	20	
1	0000 0001	1	SH	33	0010 0001	21	!
2	0000 0010	2	SX	34	0010 0010	22	”
3	0000 0011	3	EX	35	0010 0011	23	#
4	0000 0100	4	ET	36	0010 0100	24	$
5	0000 0101	5	EQ	37	0010 0101	25	%
6	0000 0110	6	AK	38	0010 0110	26	&
7	0000 0111	7	BL	39	0010 0111	27	’
8	0000 1000	8	BS	40	0010 1000	28	(
9	0000 1001	9	HT	41	0010 1001	29	)
10	0000 1010	A	LF	42	0010 1010	2A	*
11	0000 1011	B	HM	43	0010 1011	2B	+
12	0000 1100	C	CL	44	0010 1100	2C	,
13	0000 1101	D	CR	45	0010 1101	2D	–
14	0000 1110	E	S0	46	0010 1110	2E	.
15	0000 1111	F	S1	47	0010 1111	2F	/
16	0001 0000	10	DE	48	0011 0000	30	0
17	0001 0001	11	D1	49	0011 0001	31	1
18	0001 0010	12	D2	50	0011 0010	32	2
19	0001 0011	13	D3	51	0011 0011	33	3
20	0001 0100	14	D4	52	0011 0100	34	4
21	0001 0101	15	NK	53	0011 0101	35	5
22	0001 0110	16	SN	54	0011 0110	36	6
23	0001 0111	17	EB	55	0011 0111	37	7
24	0001 1000	18	CN	56	0011 1000	38	8
25	0001 1001	19	EM	57	0011 1001	39	9
26	0001 1010	1A	SB	58	0011 1010	3A	:
27	0001 1011	1B	EC	59	0011 1011	3B	;
28	0001 1100	1C	→	60	0011 1100	3C	<
29	0001 1101	1D	←	61	0011 1101	3D	=
30	0001 1110	1E	↑	62	0011 1110	3E	>
31	0001 1111	1F	↓	63	0011 1111	3F	?

Decimal number	Binary number	Hexadecimal number	Character	Decimal number	Binary number	Hexadecimal number	Character
64	0100 0000	40	@	32	0110 0000	60	‘
65	0100 0001	41	A	33	0110 0001	61	a
66	0100 0010	42	B	34	0110 0010	62	b
67	0100 0011	43	C	35	0110 0011	63	c
68	0100 0100	44	D	36	0110 0100	64	d
69	0100 0101	45	E	37	0110 0101	65	e
70	0100 0110	46	F	38	0110 0110	66	f
71	0100 0111	47	G	39	0110 0111	67	g
72	0100 1000	48	H	40	0110 1000	68	h
73	0100 1001	49	I	41	0110 1001	69	i
74	0100 1010	4A	J	42	0110 1010	6A	j
75	0100 1011	4B	K	43	0110 1011	6B	k
76	0100 1100	4C	L	44	0110 1100	6C	l
77	0100 1101	4D	M	45	0110 1101	6D	m
78	0100 1110	4E	N	46	0110 1110	6E	n
79	0100 1111	4F	O	47	0110 1111	6F	o
80	0101 0000	50	P	48	0111 0000	70	p
81	0101 0001	51	Q	49	0111 0001	71	q
82	0101 0010	52	R	50	0111 0010	72	r
83	0101 0011	53	S	51	0111 0011	73	s
84	0101 0100	54	T	52	0111 0100	74	t
85	0101 0101	55	U	53	0111 0101	75	u
86	0101 0110	56	V	54	0111 0110	76	v
87	0101 0111	57	W	55	0111 0111	77	w
88	0101 1000	58	X	56	0111 1000	78	x
89	0101 1001	59	Y	57	0111 1001	79	y
90	0101 1010	5A	Z	58	0111 1010	7A	z
91	0101 1011	5B	[	59	0111 1011	7B	{
92	0101 1100	5C	¥	60	0111 1100	7C	|
93	0101 1101	5D	]	61	0111 1101	7D	}
94	0101 1110	5E	^	62	0111 1110	7E	~
95	0101 1111	5F	_	63	0111 1111	7F	

25 Mode Adjustment Item Table

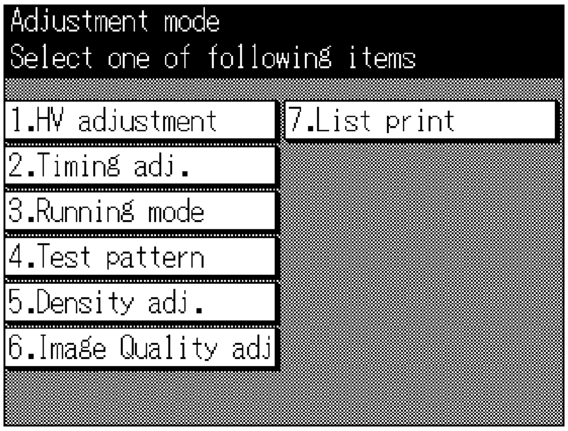
	Adjust Item menu		(Remarks)
1.Software SW			Refer to “List of software DIP SW”.
2.Paper size			
3.PM COUNT/CYCLE	1.PM COUNT reset		
	2.PM CYCLE set		
4.Collecting data	1.Count data	Data collection 1 (by each size) (RADF paper passage count)	
		Data collection 2 (JAM occurrence count by each point)	
		Data collection 3 (Copy count by each mode)	
		Data collection 4 (SC occurrence count: F code)	
	2.Date count data		
5.Parts counter	1.Count of parts(Fixed)		49 items
	2.Count of parts(Named)		30 items
6.Password setting	1.Key operator password set		4-digit
	2.E.K.C. master key code set		9-digit
	3.Weekly timer master key set		4-digit
7.Service TEL No.			Telephone & Fax. No. of service center setting.
8.M/c serial number			Indicates serial No. of main and each optional unit.
9.ROM version			Indicates each ROM version.
10.KRDS setting	1.Calling time set 2.Host password set 3.KRDS TEL NO Setting 4.KRDS software SW set 5.KRDS Setup calling		
11.ISW	1.System (ISW_1) 2.Image (ISW_2)		Rewriting the system control board program.

36 MODE

A special operating mode called “36 Mode” has been provided with this machine. This mode enables adjustment of the various parts.

[1] Setting Method

1. Turn OFF the SW2 (sub power) when the SW1 (main power) remains ON.
2. Turn the SW2 (sub power) on while pressing 3 and 6 of the copy quantity setting buttons.
   36 Mode Menu Screen will appear on the LCD screen.
   At this time, normal copy operation is not possible.
   [36 mode menu screen]



Adjustment mode
Select one of following items

1.HV adjustment
2.Timing adj.
3.Running mode
4.Test pattern
5.Density adj.
6.Image Quality adj
7.List print

3. Press the desired item key on the LCD screen.
   The selected setting screen will appear.
4. Enter data in each setting screen.
5. Press the SET or Return key to end the setting.
6. Turn the SW2 (sub power) off to cancel the 36 mode.
7. New data will be effective after restarted.

[2] High Voltage Adjustment

1. Charging Corona Current Adjustment

Charging Corona Current Adjustment is inhibited in the field.

2. Transfer Current Adjustment

Transfer Current Adjustment is inhibited in the field.

3. Separation (AC) Voltage Adjustment

Separation (AC) Voltage Adjustment is inhibited in the field.

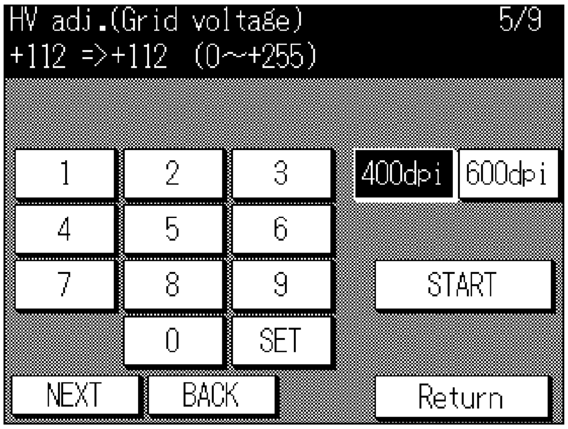
4. Separation (DC) Current Adjustment

Separation (DC) Current Adjustment is inhibited in the field.

5. Charging Grid Voltage Adjustment

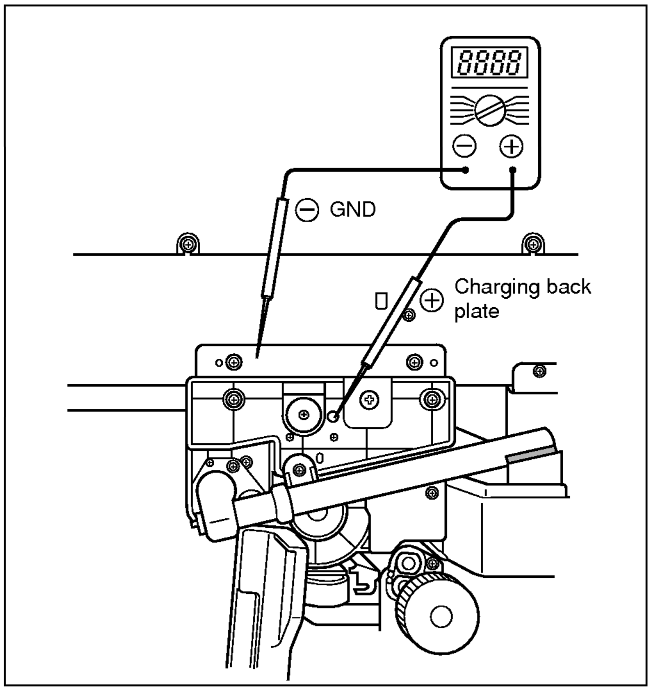
Perform this adjustment when the drum, charging control plate, High voltage unit 1 or parameter memory board is replaced. Refer to the "• LIST OF ADJUSTMENT ITEM" (P.5-2) since there is a prioritization in the adjustment order.

[Grid voltage setting screen]



HV adj.(Grid voltage) 5/9
+112 =>+112 (0~+255)

Step	Operation procedure
1	Connect the tester as shown Figure. +: Charging back plate –: GND (Earth) Range: 1000 VDC or auto range
2	Fit the door switch jig to the inter lock switch (MS1) for the front door, then enter the 36 mode.
3	**[36 mode menu screen]** Press the 1.HV adjustment key.
4	**[High voltage adjustment screen]** Press the NEXT or BACK key until "HV adj. (Grid voltage)" will appear in the message display area.
5	**[Grid voltage setting screen]** Press the Start print button and check the tester value.
6	After checking, press the Stop/Clear button. If the measurement value is different to the standard value, enter a value using the numeric keys on the screen, then press the SET key. Standard value: Drum designate value (Indicated on the flange) ± 5 V Input range = 0 (lower) ~ 255 (higher) 1 step = 1.6 V
7	Repeat steps 5 and 6 until the grid voltage becomes the standard value.
8	To adjust another adjustment, press the NEXT or BACK key to select the desired adjustment.
9	Press the Return key to return to the 36 mode menu screen.



6. Developing Bias Adjustment

Developing Bias Adjustment is inhibited in the field.

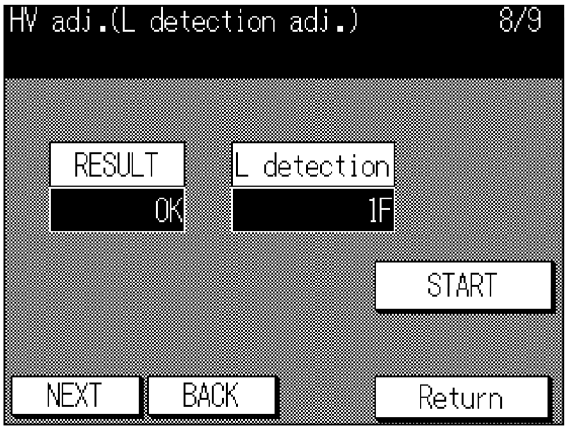
7. Dmax Correction

Normally, this adjustment takes place automatically in the machine. Because of this adjustment is not required in the field.

8. L detection Adjustment

⚠ Preform this adjustment when installing the main body or replacing the developer. The developing count is automatically reset. Refer to the "• LIST OF ADJUSTMENT ITEM" (P. 5-2) since there is a prioritization in the adjustment order.

[L detection adjustment screen]



HV adj.(L detection adj.) 8/9

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 1.HV adjustment key.
3	**[High voltage adjustment screen]** Press the NEXT or BACK key until "HV adj. (L detection adj.)" will appear in the message display area.
4	**[L detection adjustment screen]** Press the START key, then confirm that the [OK] is displayed at the "RESULT" and the L detection data value.
5	To adjust another adjustment, press the NEXT or BACK key to select the desired adjustment.
6	Press the Return key to return to the 36 mode menu screen.

⚠ **Caution:** When starting the adjustment, check that the developer is replaced with the new developer. If the adjustment is performed with the used developer, the adjustment value becomes mistaken value since the used developer toner density becomes the reference value.

9. Toner automatic supply

Normally, this adjustment takes place automatically in the machine. Because of this adjustment is not required in the field.

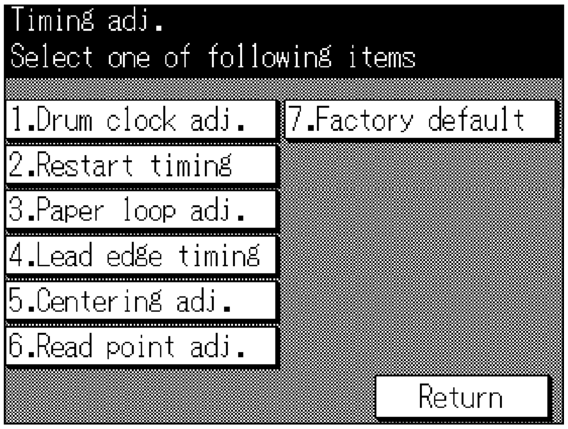
[3] Timing Adjustment

⚠ This function adjusts each timing. Perform the adjustment in order of the displayed item other than RADF vertical magnification adjustment.

When timing adjustment is performed, use A3 or 11 x 17 size paper.

(1) Select the [2. Timing adj.] in the 36 mode menu screen. The timing adjustment menu screen will appear.

[Timing Adjustment menu screen]



Timing adj.
Select one of following items

(2) Press the item key to be adjusted. The selected setting screen will appear.

(3) Press the NEXT, BACK key to select the desired adjustment item. The adjustment item name will appear in the message area on each item screen.

(4) Enter data from the numeric key on the screen, then press the SET key to enter the data that has been entered.

(5) Press the COPY key to return to the basic screen, then make a test copy. (except for [7. Factory default])

(6) Press the C button while pressing the P button to return to the adjustment screen.

(7) If the output (test copy image) is different to the standard value, enter setting value using the numeric keys and make a test copy. If the output (test copy image) is in the standard value, adjust the next adjustment item.

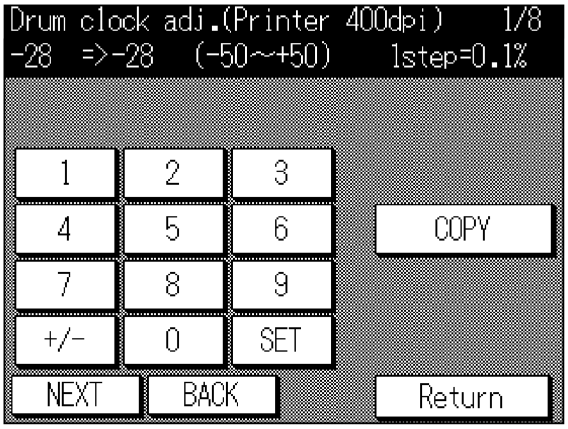
(8) After adjustment is completed, press the Return key to return to the timing adjustment screen.

1. Vertical/Horizontal magnification adjustment

Adjust the vertical magnification at the zoom mode.

(1) Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear. Select the [1. Drum clock adj.] on this screen, then the vertical/horizontal magnification adjustment screen will appear.

[Vertical/Horizontal magnification (Drum clock) adjustment screen (Example: Printer (400dpi))]


Drum clock adj.(Printer 400dpi) 1/8
-28 =>-28 (-50~+50) 1step=0.1%

This adjustment has the following items. These can be selected by pressing the NEXT or BACK key.

- Printer vertical magnification adjustment (400dpi)
- Printer vertical magnification adjustment (600dpi)
- Platen vertical magnification adjustment
- Platen horizontal magnification adjustment
- RADF (50%) vertical magnification adjustment
- RADF (100%) vertical magnification adjustment
- RADF (200%) vertical magnification adjustment
- RADF (400%) vertical magnification adjustment

(2) Enter data from the numeric key on the screen, then press the SET key to enter the data that has been entered.

(3) Press the COPY key to return to the basic screen, then make a test copy.

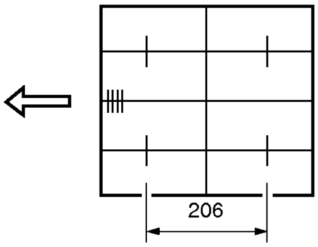
(4) Press the C button while pressing the P button to return to the Vertical/Horizontal magnification adjustment screen.

(5) If the output (test copy image) is different to the standard value, enter setting value using the numeric keys and make a test copy.
If the output (test copy image) is within the standard value, adjust the next adjustment item.

a. printer system vertical magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 1.Drum clock adj. key.
4	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** Press the NEXT or BACK key until "Printer (400dpi)" or "Printer (600dpi)" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper, then press the Start print button to print the SGU pattern.
7	Measure the vertical magnification of the output paper. Standard value: ± 0.5% max (life size) Within about ± 1 mm with respect to 206 mm.
8	Press the C button while pressing the P button to return to the vertical/horizontal magnification (Drum clock) adjustment screen.
9	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** If the vertical magnification is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –50 (reduction) ~ +50 (enlargement) 1 step = 0.1%
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

Standard value: ±0.5% max (life size)
Within about ± 1.0 mm with respect to 206 mm.

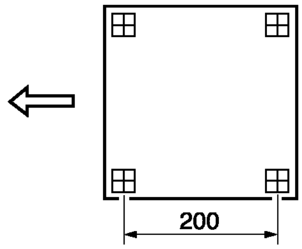


Vertical magnification

b. Platen vertical magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 1.Drum clock adj. key.
4	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** Press the NEXT or BACK key until "Scanner" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper. Then press the Start print button to make a test copy.
7	Measure the vertical magnification of the output paper. Standard value: ± 0.5% max (life size) Within about ± 1 mm with respect to 200 mm.
8	Press the C button while pressing the P button to return to the vertical/horizontal magnification adjustment screen.
9	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** If the vertical magnification is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –31 (reduction) ~ +31 (enlargement) 1 step = 0.05 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

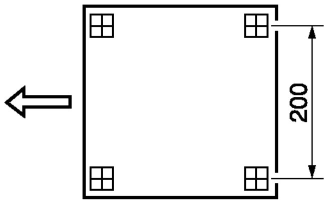
Standard value: ± 0.5% max (life size)
Within about ± 1.0 mm with respect to 200 mm.



c. Platen horizontal magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 1.Drum clock adj. key.
4	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** Press the NEXT or BACK key until "Platen" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper. Then press the Start print button to make a test copy.
7	Measure the horizontal magnification of the output paper. Standard value: ± 0.5% max (life size) Within about ± 1 mm with respect to 200 mm.
8	Press the C button while pressing the P button to return to the vertical/horizontal magnification adjustment screen.
9	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** If the horizontal magnification is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –10 (reduction) ~ +10 (enlargement) 1 step = 0.1 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

Standard value: ± 0.5% max (life size)
Within about ± 1.0 mm with respect to 200 mm.



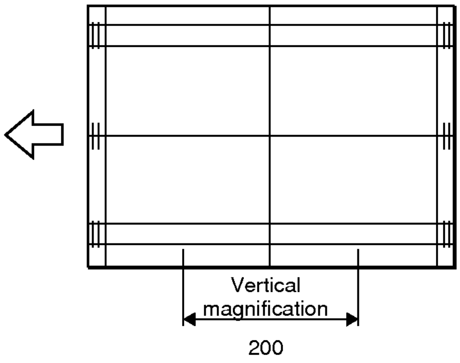
⚠1 **Caution:** The result of the platen horizontal magnification adjustment is reflected all scanner read images (platen, RADF).

d. RADF vertical magnification adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 1.Drum clock adj. key.
4	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** Press the NEXT or BACK key until "RADF/100" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the Start print button to make a test copy.
7	Measure the vertical magnification of the output paper. Standard value: ± 1.0% max (life size) Within about ± 2.0 mm with respect to 200 mm.
8	Press the C button while pressing the P button to return to the vertical/horizontal magnification adjustment screen.
9	**[Vertical/Horizontal magnification (Drum clock) adjustment screen]** If the vertical magnification is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –20 (reduction) ~ +20 (enlargement) 1 step = 0.1 %
10	Repeat steps 5 to 9 until the vertical magnification becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

Caution: The RADF vertical magnification adjustment is performed in order of 100%, 50%, 200%, 400%.

Standard value: ± 1.0% max (life size)
Within about ± 2.0 mm with respect to 200 mm.



2. Restart timing adjustment

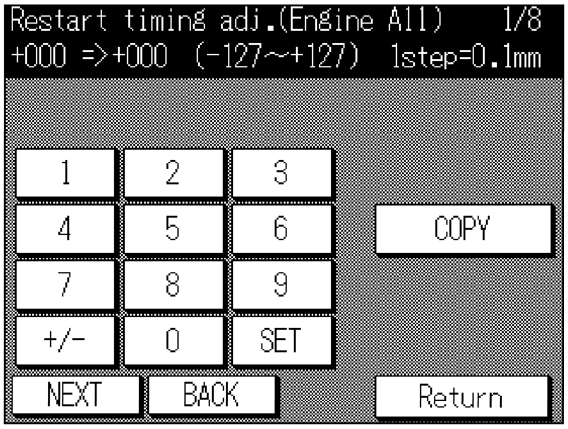
To adjust the restart timing.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [2. Restart timing] on this screen, then the restart timing adjustment screen will appear.

This adjustment has the following kinds of items.

[Restart Timing Adjustment Screen (Example: engine)]



Restart timing adj.(Engine All) 1/8
+000 =>+000 (-127~+127) 1step=0.1mm

These can be selected by pressing the NEXT or BACK key.

a. Engine All (item other than RADF)
b. Main body lower tray
c. DB1
d. DB2
e. DB 3 (for DB-208 is installed)
f. By-pass
g. ADU
h. RADF (front side)
i. RADF (back side)

(1)Engine restart timing adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 2.Restart timing key.
4	**[Restart timing adjustment screen]** Press the NEXT or BACK key until the desire adjustment item will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper and press the Start print button to print the SGU pattern.
7	Check the restart (leading edge) timing of the output paper. Standard value: Within ± 2.0 mm
8	Press the C button while pressing the P button to return to the restart timing adjustment screen.
9	**[Restart timing adjustment screen]** If the restart timing is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –127(slow) ~ +127 (fast) 1 step = 0.1 mm
10	Repeat steps 5 to 9 until the restart timing becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

(2)RADF restart timing adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 2.Restart timing key.
4	**[Restart timing adjustment screen]** Press the NEXT or BACK key until "(RADF/(surface)" or "(RADF/back)" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper. Then press the Start print button to make a test copy. * Adjust the "RADF/back", then make a test copy in 2-1 mode and check the restart timing of 2nd output paper.
7	Check the restart (leading edge) timing of the output paper. Standard value: Within ± 3.0 mm (life size)
8	Press the C button while pressing the P button to return to the restart timing adjustment screen.
9	**[Restart timing adjustment screen]** If the restart timing is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –50 (slow) ~ +50 (fast) 1 step = 0.1 mm
10	Repeat steps 5 to 9 until the restart timing becomes the standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

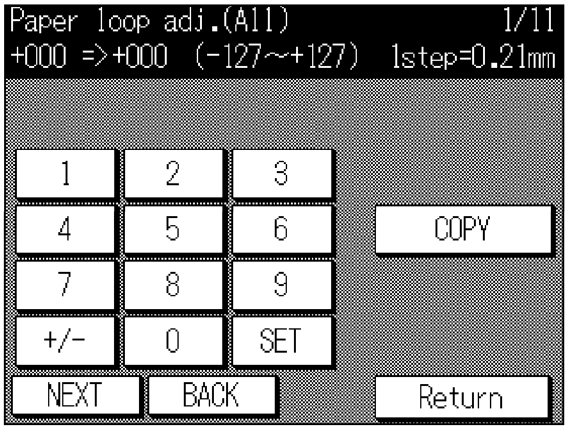
3. Paper feed loop amount adjustment

Adjust the loop amount for each tray.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [3. Paper loop adj.] on this screen, then the paper feed loop amount adjustment screen will appear.

[Paper feed loop amount adjustment screen (All)]



Paper loop adj.(All) 1/11

+000 =>+000 (-127~+127) 1step=0.21mm

This adjustment has the following kinds of items. These can be selected by pressing the NEXT or BACK key.

a. All
b. ADU (small size: *1)
c. ADU (large size: *2)
d. Main body lower tray (small size: *3)
e. Main body lower tray (large size: *4)
f. DB
g. By-pass (plain paper)
h. By-pass (thick paper)
i. ADU
j. RADF (front side)
k. RADF (back side)

*1: A5, B6R, B5, 5.5x8.5
*2: Except for A5, B6R, B5, 5.5x8.5
*3: Except for F4R, A3, B4, 8.5x14, 11x17
*4: F4R, A3, B4, 8.5x14, 11x17

(1)Paper feed loop amount adjustment for engine

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 3.Paper loop adj. key.
4	**[Paper feed loop amount adjustment screen]** Press the NEXT or BACK key until the desire adjustment item will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Select A3 or 11 x 17 size paper, then press the Start print button to print the SGU pattern.
7	Check the paper feed loop amount.
8	Press the C button while pressing the P button to return to the paper feed loop amount adjustment screen.
9	**[Paper feed loop amount adjustment screen]** If the paper feed loop amount is not proper, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –127 (small) 00 (standard) ~ +127 (large) 1 step = 0.21 mm
10	Repeat steps 5 to 9 until the paper feed loop amount is appropriate.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

(2)Paper feed loop amount adjustment for RADF

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 3.Paper loop adj. key.
4	**[Paper feed loop amount adjustment screen]** Press the NEXT or BACK key until "(RADF/surface)" or "(RADF/back)" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the Start print button to make a test copy. * Adjust the "RADF/back", then make a test copy in 2-1 mode and check the loop amount of 2nd outputted paper.
7	Check the paper feed loop amount.
8	Press the C button while pressing the P button to return to the paper feed loop amount adjustment screen.
9	**[Paper feed loop amount adjustment screen]** If the paper feed loop amount is not proper, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –10 (small) 00 (standard) ~ +10 (large) 1 step = 0.5 mm
10	Repeat steps 5 to 9 until the paper feed loop amount is appropriate.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

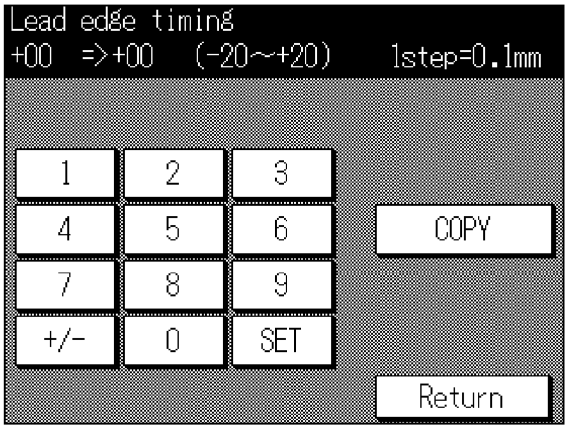
4. Leading edge original erasure adjustment

Adjust the leading edge original erasure (leading edge blank cut) amount.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [4. Lead edge timing] on this screen, then the leading edge original erasure amount adjustment screen will appear.

[Leading edge original erasure adjustment screen]



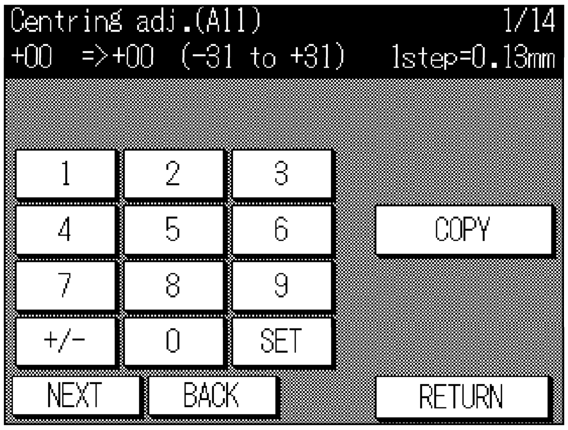
Lead edge timing
+00 =>+00 (-20~+20) 1step=0.1mm

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 4.Lead edge timing key.
4	**[Leading edge original erasure adjustment screen]** Press the COPY key.
5	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper, then press the Start print button to make a test copy.
6	Measure the leading edge original erasure amount of the output paper. Standard value: Within 3.0 mm
7	Press the C button while pressing the P button to return to the leading edge original erasure amount adjustment screen.
8	**[Leading edge original erasure amount adjustment screen]** If the leading edge original erasure amount is not proper, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –20 (small) ~ +20 (large) 1 step = 0.1 mm
9	Repeat steps 4 to 8 until the leading edge original erasure amount becomes the standard value.
10	Press the Return key to return to timing adjustment menu screen.

5. Centering adjustment

Adjusts the mis-centering for paper feed direction.
Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.
Select the [5. Centering adj.] on this screen, then the centering adjustment screen will appear.

△3 **[Centering adjustment screen (Example: All)]**



Centring adj.(All) 1/14
+00 =>+00 (-31 to +31) 1step=0.13mm

This adjustment has the following kinds of items. These can be selected by pressing the NEXT or BACK key.

a. All
b. Main body lower tray
c. DB1
d. DB2
e. DB3 (for DB-208 is installed)
f. By-pass
g. ADU (Co/L/M/S/SS: *1, *2)
△1 h. Platen (*3)
i. RADF (side 1)
j. RADF (side 2)

*1: ADU centering adjustment can be taken place for each paper size. (L/M/S/SS)
L: A3, B4, 11x17, 8.5x14
M: A4R, B5R, 8.5x11R
S: A4, B5, 8.5x11
SS:A5R, 5.5x8.5R

*2: ADU centering adjustment for each paper size is the offset adjustment from the ADU (collective).

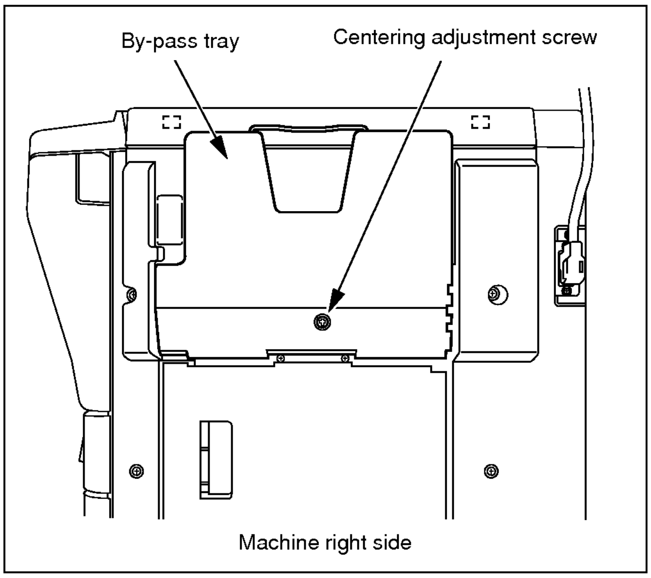
△1 *3: The adjustment of “i”, “j”, “k” is performed after “a” to “g” are finished.

(1)Each tray centering adjustment

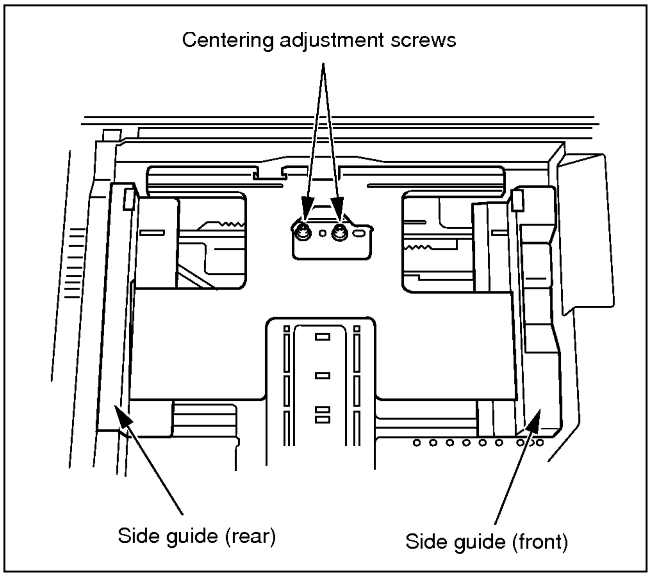
Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 5.Centering adj. key.
4	**[Centering adjustment Screen]** Press the NEXT or BACK key until the desire tray will appear in the message display area
5	Press the COPY key.
6	**[Basic screen]** Set A3 or 11 x 17 size paper in the tray to be adjusted and select this tray. Then press the Start print button to print the SGU pattern.
7	Fold the output (SGU pattern) at the center in the paper feed direction, and check that the left and right line coincide exactly. Standard value: Within ± 2 mm
8	Press the C button while pressing the P button to return to the centering adjustment screen.
9 △3	**[Centering adjustment screen]** If the mis-centering is more than standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –31 (inward direction of the center line) ~ + 31 (rear direction of the center line) 1 step = 0.13 mm
10	Repeat steps 5 to 9 until the mis-centering is within standard value. (*1)
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

*1: If centering is not within specification after adjusting data mechanical adjustment is possible.

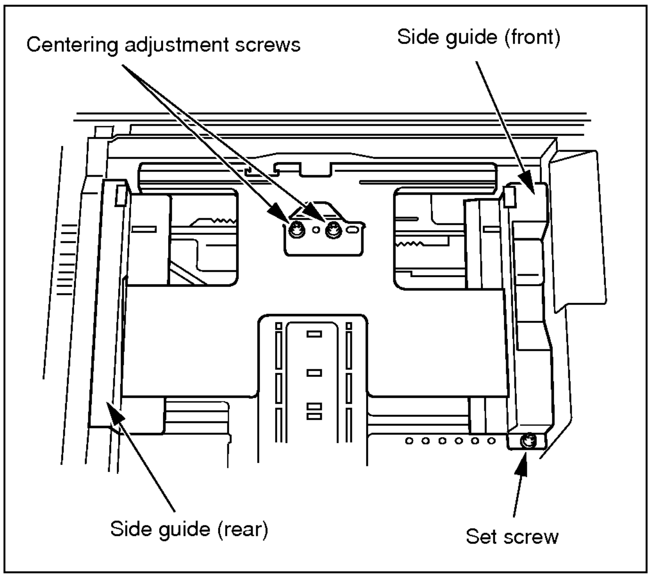
1. By-pass
   Loosen the centering adjustment screw (TP screw) on the back side of the by-pass tray, then slide the centering restriction guide (front and rear) and adjust the centering.



2. Universal tray
   Loosen the two centering adjustment screws (bind screw) on the tray center and adjusts the centering.



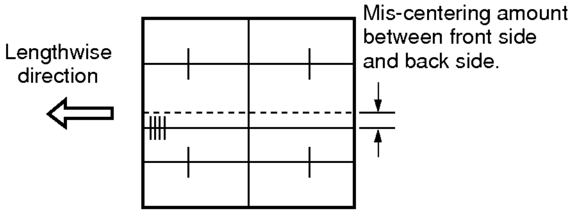
3. Tray (fixed tray)
   Loosen the one set screw (TP screw) holding the side guide (front), then loosen the two centering adjustment screws (bind screw) on the tray center and adjusts the centering.



(2) ADU centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the `2.Timing adj.` key.
3	**[Timing adjustment menu screen]** Press the `5.Centering adj.` key.
4	**[Centering adjustment screen]** Press the `NEXT` or `BACK` key until "(ADU)" will appear in the message display area.
5	Press the `COPY` key.
6	**[Basic screen]** Select copy mode to 1-2 mode, then press the Start print button to print the SGU pattern.
7	Fold the output (SGU pattern) at the center in the paper feed direction, and check that the left and right line coincide exactly. Standard value: Front side ; Within ± 3 mm Back side ; Within ± 3 mm
8	Press the C button while pressing the P button to return to the centering adjustment screen.
9 △3	**[Centering adjustment screen]** If the mis-centering is more than standard value, enter a value from the numeric key, then press the `SET` key to store the adjustment value. Input range = –31 (inward direction of the center line) ~ + 31 (rear direction of the center line) 1 step = 0.13 mm
10	Repeat steps 5 to 9 until the mis-centering is within standard value for each paper size.
11	To adjust another adjustment item, press the `NEXT` or `BACK` key to select the desired adjustment.
12	Press the `Return` key to return to the timing adjustment menu screen.

Standard value: Within 3.0 mm (life size)



(3)Platen centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 5.Centering adj. key.
4	**[Centering adjustment screen]** Press the NEXT or BACK key until "(Platen)" will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper, then press the Start print button to make a test copy.
7	Fold the output (test copy) at the center in the paper feed direction, and check that the left and right line coincide exactly. Standard value: Within ± 2 mm
8	Press the C button while pressing the P button to return to the centering adjustment screen.
9	**[Centering adjustment screen]** If the mis-centering is more than standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –74 (inward direction of the center line) ~ + 74 (rear direction of the center line) 1 step = 0.06 mm
10	Repeat steps 5 to 9 until the mis-centering is within standard value.
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

(4) RADF centering adjustment

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 5.Centering adj. key.
4	**[Centering adjustment screen]** Press the NEXT or BACK key until "(RADF/surface)" or "(RADF/back) will appear in the message display area.
5	Press the COPY key.
6	**[Basic screen]** Set the ADF adjustment chart on the RADF and select A3 or 11 x 17 size paper, then press the Start print button to make a test copy. * Adjust the "RADF/back", then make a test copy in 2-1 mode and check the loop amount of 2nd outputted paper.
7	Fold the output (test copy) at the center in the paper feed direction, and check that the left and right line coincide exactly. Standard value: Within ± 3 mm
8	Press the C button while pressing the P button to return to the centering adjustment screen.
9	**[Centering adjustment screen]** If the mis-centering is more than standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –74 (inward direction of the center line) ~ + 74 (rear direction of the center line) 1 step = 0.06 mm
10	Repeat steps 5 to 9 until the mis-centering is within standard value for each adjustment ("RADF/surface" and "RADF/back").
11	To adjust another adjustment item, press the NEXT or BACK key to select the desired adjustment.
12	Press the Return key to return to the timing adjustment menu screen.

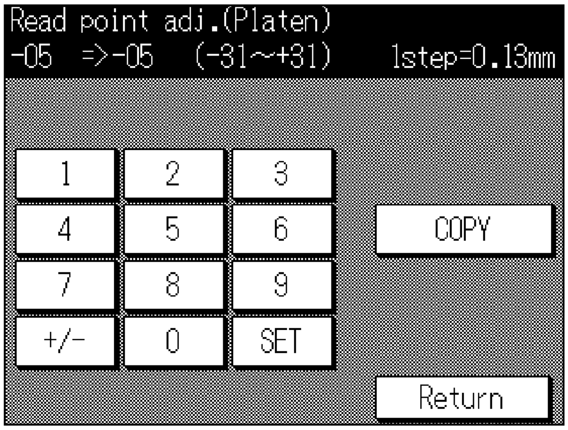
6. Image read point adjustment

Adjusts the image read point.

Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.

Select the [6. Read point adj.] on this screen, then the centering adjustment screen will appear.

[Image read point adjustment screen]



Read point adj.(Platen)
-05 =>-05 (-31~+31) 1step=0.13mm

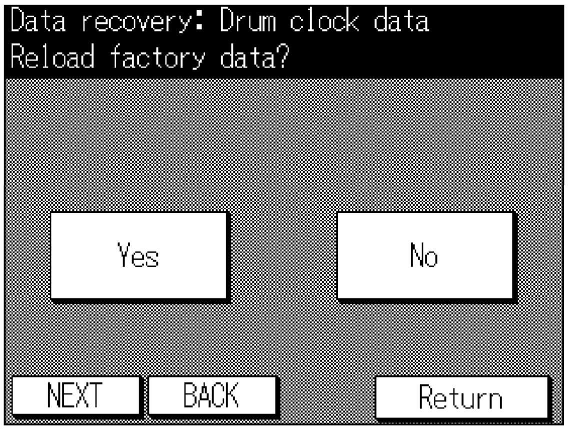
Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 6.Read point adj. key.
4	**[Image read point adjustment screen]** Press the COPY key.
5	**[Basic screen]** Set the new pyramid chart on the original glass and select A3 or 11 x 17 size paper, then press the Start print button to make a test copy.
6	Preform a comparison between original image and test copy image. Then check the image read point. Standard value: Within ± 3.0 mm
7	Press the C button while pressing the P button to return to the image read position adjustment screen.
8	**[Image read point adjustment screen]** If the image read point is different to the standard value, enter a value from the numeric key, then press the SET key to store the adjustment value. Input range = –31 (small) ~ + 31 (large) 1 step = 0.13 mm
9	Repeat steps 4 to 8 until the image read point is within standard value.
10	Press the Return key to return to the timing adjustment menu screen.

7. Resetting Standard Data

Reset the adjusted set values of timing adjustment to the standard values (factory set data).
Select the [2. Timing adj.] in the 36 mode menu screen, then the timing adjustment menu screen will appear.
Select the [7. Factory default] on this screen, then the resetting standard data screen will appear.
This adjustment can be reset the following item adjusted set values to the standard values (factory set data). These can be selected by pressing the NEXT or BACK key.

a. Vertical/Horizontal magnification adjustment
b. Restart timing adjustment
c. Paper feed loop amount adjustment
d. Leading edge original erasure adjustment
e. Centering adjustment
f. Image read point adjustment

[Resetting standard data screen (Example: Vertical magnification adjustment)]



Data recovery: Drum clock data
Reload factory data?

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 2.Timing adj. key.
3	**[Timing adjustment menu screen]** Press the 7.Factory default key.
4	**[Resetting standard data screen]** Press the NEXT or BACK key until the desire item will appear in the message display area.
5	Press the Yes key to reset the set values to the standard values that has been selected item. Press the No or Return key, then the set values are not reset and return to the timing adjustment menu screen.
6	To reset another adjustment item, repeat steps 4 to 5.
7	Press the Return key to return to the timing adjustment menu screen.

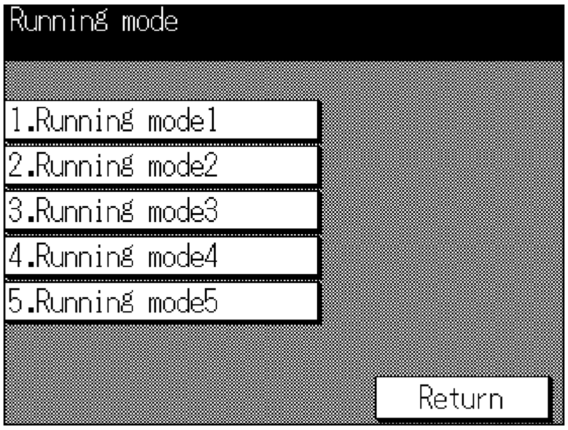
[4] Running Test Mode

Select the [3. Running mode] in the 36 mode menu screen, then the running test mode menu screen will appear.

The following items can be selected.

1. Running mode 1 (Intermittent copy mode)
   Running mode 1 is an intermittent copy mode. In this mode, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec, then starts the same operation again.
2. Running mode 2 (Paperless intermittent copy mode)
   Running mode 2 is a paperless intermittent copy mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection. Also, like running mode 1, after the set number of copy operations has been completed, the machine goes into the copy ready status, waits 0.5 sec, then starts the same operation again.
3. Running mode 3 (paperless mode)
   Running mode 3 is a paperless mode. It makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.
4. Running mode 4 (Paper less endless mode)
   Running mode 4 is a paperless endless mode. It automatically sets the copy quantity to infinity. Also, like running mode 3, it makes copies at roughly the same timing as for a normal copy, without performing paper detection or jam detection.
5. Running mode 5
   Running mode 5 is a process running mode. It consists of running mode 4 plus an operation consisting of an optics each-time scan and an automatic paper feed tray change.

[Running test mode menu screen]



Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 3.Running mode key.
3	**[Running test mode menu screen]** Press the key according to the desired running mode. (Mode 1 to Mode 5)
4	**[Basic screen]** Press the start print button.
5	After checking the copy operation, press the Stop/Clear button to stop copy operation.
6	Press the C button while pressing the P button to return to the running test mode menu screen.
7	To perform another running test mode, repeat steps 3 to 6.
8	Press the Return key to return to 36 mode menu screen.

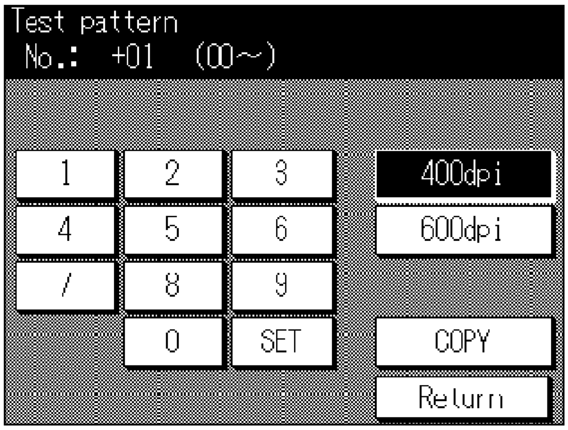
[5] Test Pattern Output

To output a test pattern.

Select the [4. Test pattern] in the 36 mode menu screen, then the test pattern output screen will appear.

Caution: Do not operate pattern numbers that are not particularly specified.

[Test pattern output screen]


Test pattern
No.: +01 (00~)

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 4.Test pattern key.
3	**[Test pattern output screen]** Press the 400dpi or 600dpi key.
4	Enter a pattern number according to the desired test pattern.
5	Press the COPY key.
6	**[Basic screen]** Press the Start print button to output a test pattern.
7	Press the C button while pressing the P button to return to the test pattern output screen.
8	To output a different test pattern, repeat steps 3 to 7.
9	Press the Return key to return to 36 mode menu screen.

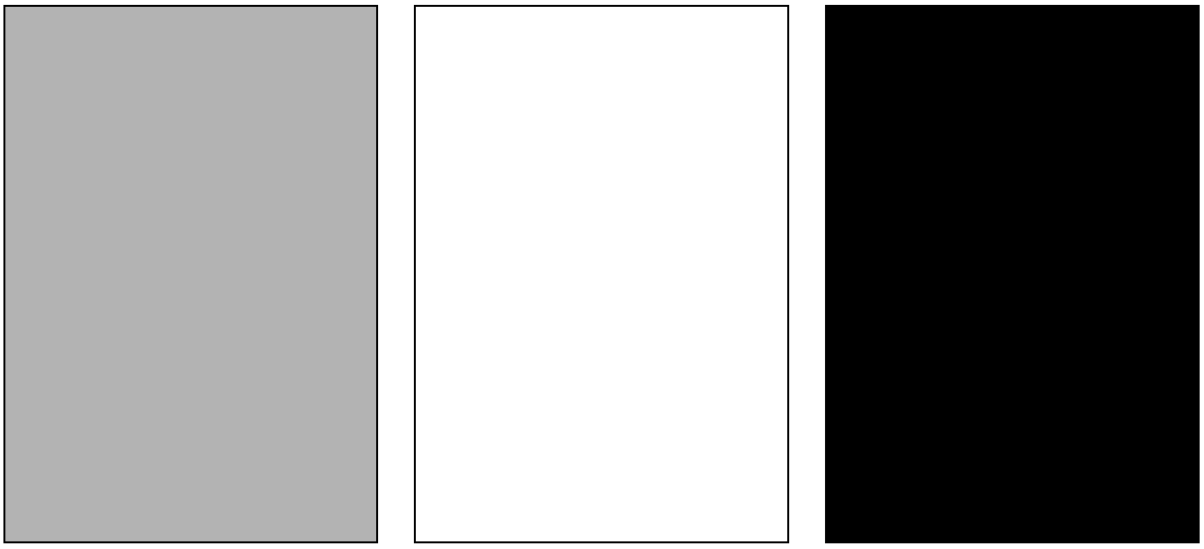
No.1 Overall halftone

△1 **[Check item]**

- When the density is set to 70 (halftone)
  If white stripes, black stripes, or uneven density can be seen, determine that the printer system is abnormal.
- When the density is set to 0 (white)
  If the test pattern is fogged, determine that the printer system (writing section, process section) is abnormal.
- When the density is set to 255 (black)
  If the density is light, determine the printer system density is too low.

* For details of setting the density, refer to [6] Test pattern density adjustment on page 5-75.

Test Pattern

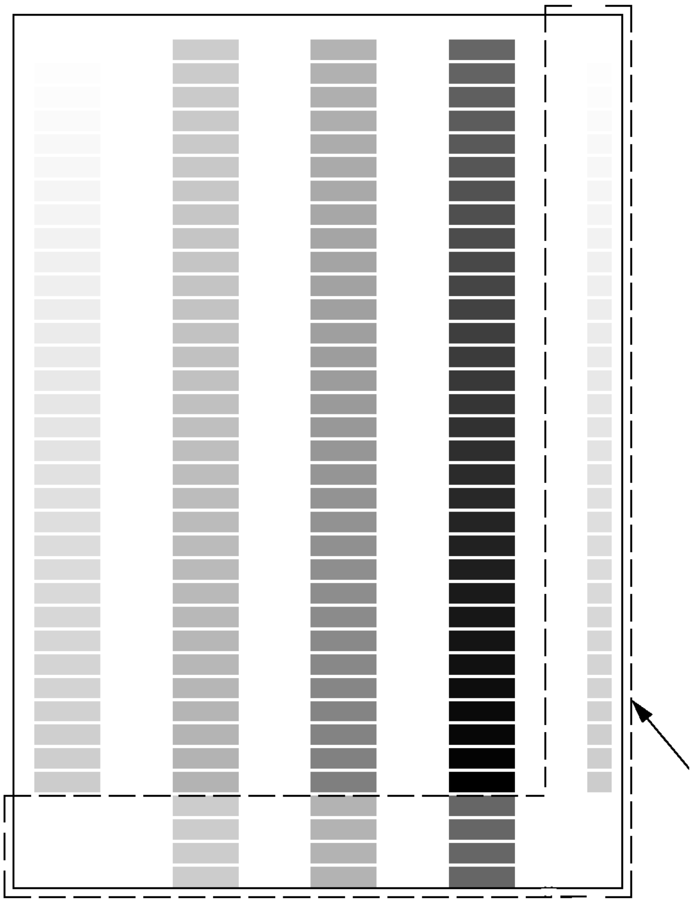


No.2 No.49	Grayscale pattern

[Check item]

No.2 test pattern is output with gamma corrected.
No.49 test pattern is output without gamma corrected.
Check that the gamma correction operates properly by the outputting these two test patterns.
△1 Check that No.2 test pattern is output with the smooth halftone until from the upper left patch to the lower right patch. Perform the “d. Gamma curve preparation” of the “1. Patch method PWM gamma correction” in the “[7] Image Quality Adjustment” when an abrupt tone jump occurs or the patch output starting point is slow. If the overall halftone does not become normal, perform the “a” to “d” of the “1. Patch method PWM gamma correction” in the “[7] Image Quality Adjustment”. I cace it is still not improved, clean or replace the related parts.

△1 **Test Pattern**



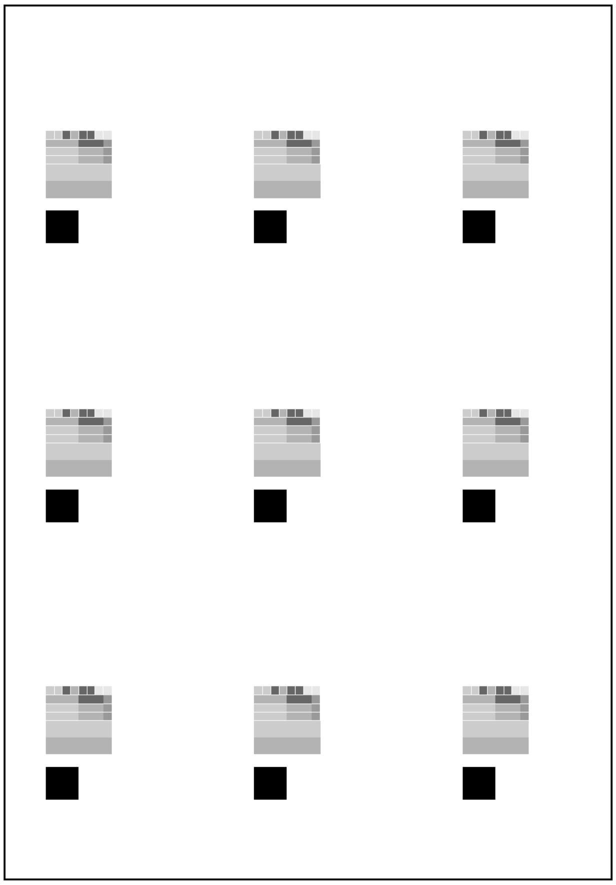
Ignore this part since it is a repeated pattern.

No.11	Writing system check

[Check item]

Check the writing system abnormality (condition of resolution, reproducibility of independence point and so on)

Test Pattern

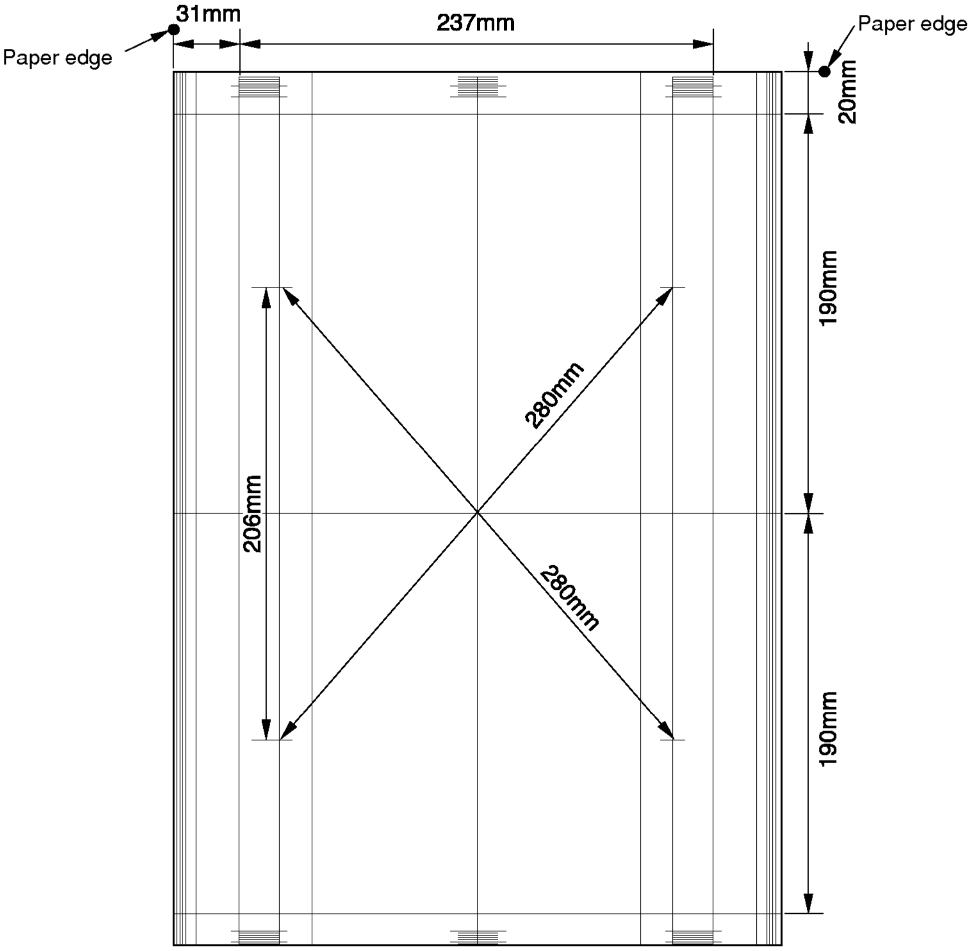


No.16 Linearity evaluation pattern

[Check item]

Judge from this test pattern which of the scanner system and the printer system is abnormal. Items that can be checked include horizontal magnification, vertical magnification, tilt image, and leading edge timing of the printer system. If the copy image is defective despite no abnormality being visible on the test pattern, the scanner system is defective.

Test Pattern

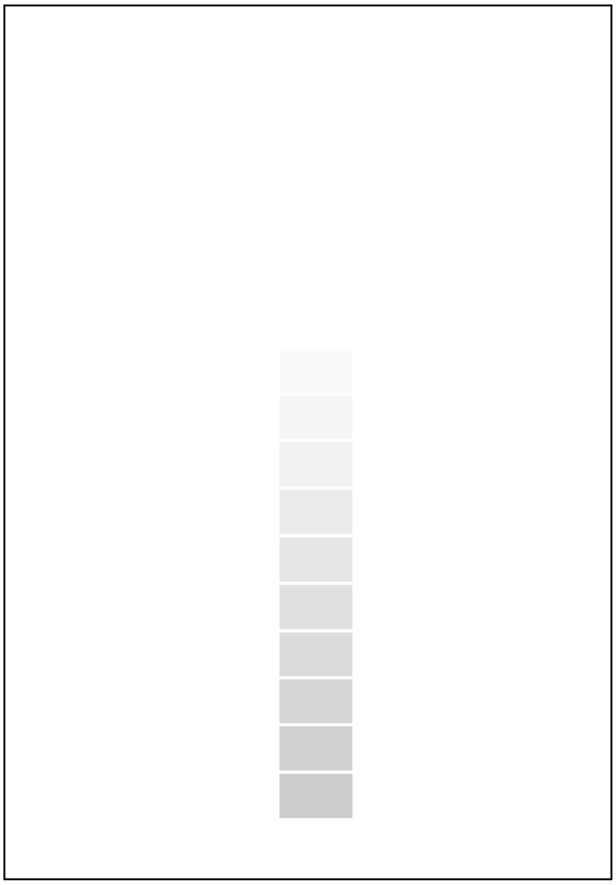

31mm
237mm
Paper edge
Paper edge
20mm
190mm
190mm
206mm
280mm
280mm

No.50	Patch pattern

[Check item]

This test pattern is used when the patch method PWM gamma correction adjustment is performed with No. 51 pattern.
Refer to the “b. SGU pattern print” of the “1. Patch method PWM gamma correction” in the “[7] Image Quality Adjustment”.

Test Pattern

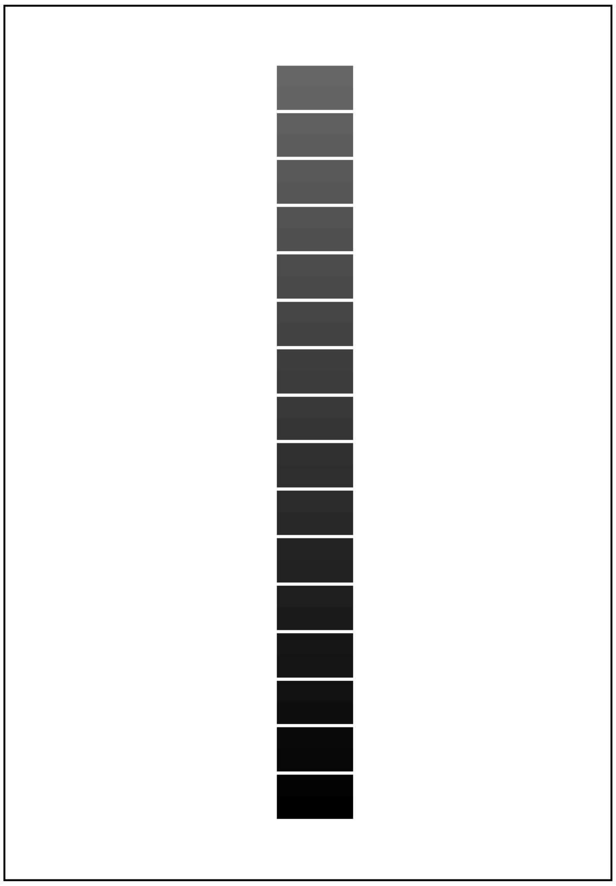


No.51	Patch pattern

[Check item]

This test pattern is used when the patch method PWM gamma correction adjustment is performed with No. 50 pattern.
Refer to the “b. SGU pattern print” of the “1. Patch method PWM gamma correction” in the “[7] Image Quality Adjustment”.

Test Pattern

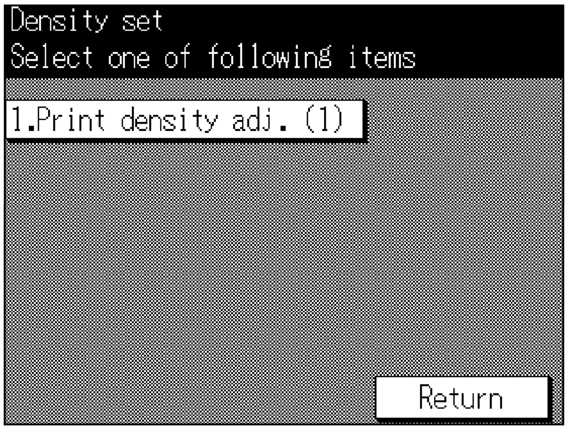


[6] Test Pattern Density Adjustment

Adjustment of the density of the test pattern.

Select the [5. Density set] in the 36 mode menu screen, then the print density adjustment menu screen will appear.

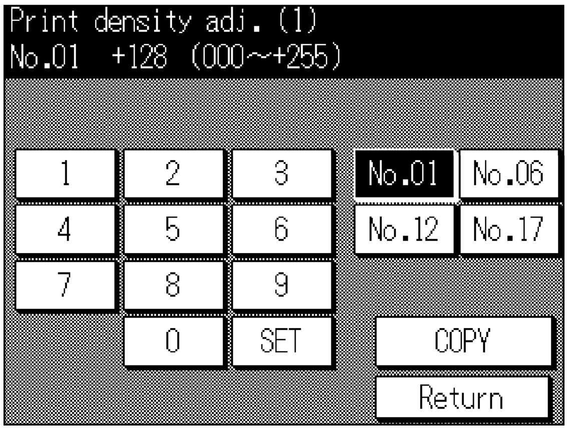
[Print density adjustment menu screen]



Density set
Select one of following items

Select the [1. Print density adj. (1)] in the print density adjustment menu screen, then the print density adjustment screen will appear.

[Print density adjustment screen]



Print density adj. (1)
No.01 +128 (000~+255)

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 5.Density adj. key.
3	**[Print density adjustment menu screen]** Press the 1.Print density adj. (1) key.
4	**[Print density adjustment screen]** Press the key according to the desire test pattern to be adjusted. (No.01, No.06, No.12 and No.17)
5	Enter the desired density by a numeric value from the numeric keys, then press the SET key. Input range: 000 (light) to +255 (dark)
6	Press the COPY key.
7	**[Basic screen]** Press the Start print button to output a test pattern.
8	Check the density of the output test pattern.
9	Press the C button while pressing the P button to return to the print density adjustment screen.
10	To adjust another test pattern, repeat steps 4 to 9.
11	Press the Return key to return to Print density adjustment menu screen.

[7] Image Quality Adjustment

This function adjusts the two kinds of image quality adjustment.

(1) Select the [6. Image Quality adj.] in the 36 mode menu screen, then the image quality adjustment screen will appear.

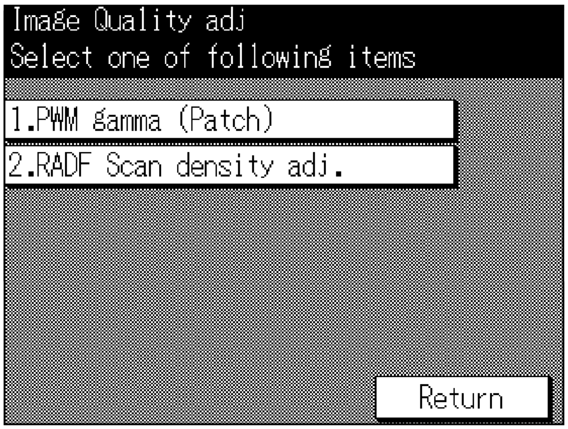


Image Quality adj
Select one of following items

[Image quality adjustment menu screen]

(2) Press the key according to the item to be adjusted. The selected adjustment screen will appear.

(3) Enter data on each screen.

(4) To end the adjustment, press the Return key to return to the Image quality adjustment menu screen.

1. Patch method PWM gamma correction

Preform PWM gamma correction (Dmax sensor correction) by reading SGU test pattern. (*1,2) △1

Perform the following four adjustment items in the order A, B, C and D.

a. Dmax correction
   Setting the darkest density.

b. SGU pattern print
   Output a SGU pattern (No.50, No.51) to use with the gamma correction.

c. Gamma correction
   Read the output pattern by the scanner of the copier with the "b. SGU pattern print" and calculate the correction value from the PWM value when pattern has been output and read pattern density.

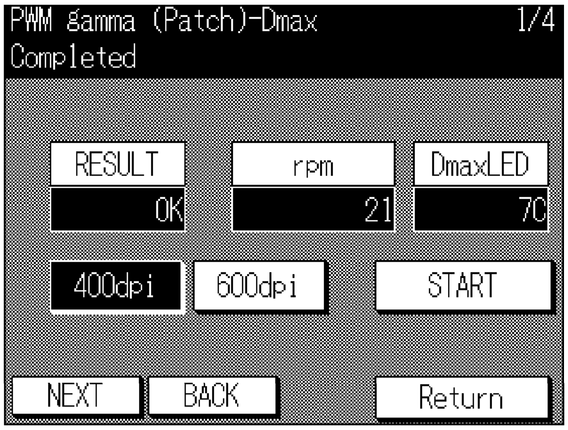
d. Gamma curve preparation
   △1 Based on the correction value obtained in the gamma correction and the patch read level, calculate the correction value of the Dmax sensor and create the gamma curve.

*1: If this correction is not completed correctly, it is possible that the halftone reproduction of the S-fine and fine is decreased. △1

*2: When performing this operation, close the side plate at the side of the main body and the rear cover.

a. Dmax correction

[Dmax correction screen]



PWM gamma (Patch)-Dmax 1/4
Completed

RESULT OK
rpm 21
DmaxLED 70

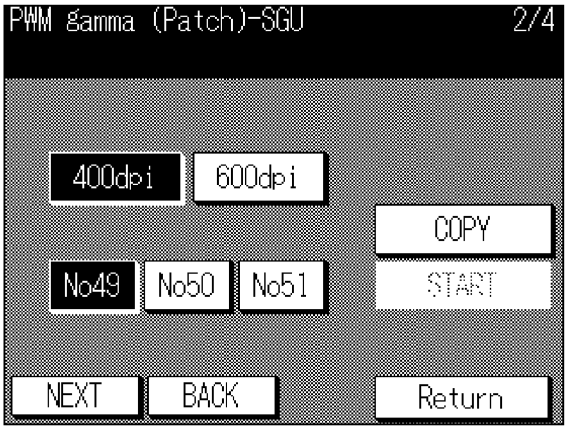
Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 6.Image Quality adj key.
3	**[Image quality adjustment menu screen]** Press the 1.PWM gamma (Patch) key.
4	**[Dmax correction screen]** Press the NEXT or BACK key until "PWM gamma (Patch)-Dmax" will appear in the message display area.
5	Press the 400dpi key.
6	Press the START key, then confirm that the "OK" is displayed in [RESULT] indication area. *3
7	Preform "b. SGU pattern print" next. Press the NEXT or BACK key until "PWM gamma (Patch)-SGU" will appear in the message display area.
8	To end the adjustment, press the Return key.

*3: Preform next adjustment, after displaying the "OK" in [RESULT] display area.

b. SGU pattern print

Output test patterns No.50 and No.51.

[SGU pattern print screen]



Step	Operation procedure
1	After [a. Dmax correction] (last adjustment item) is completed correctly, then press the NEXT or BACK key until “PWM gamma (Patch)-SGU” will appear in the message display area.
2	**[SGU test pattern print screen]** Press the 400dpi and No50 key.
3	Press the COPY key. (*1)
4	**[Basic Screen]** Select A3 or 11x17 size paper, then press the Start print button. (*2) Test pattern No.50 is outputted.
5	Press the C button while pressing the P button to return to the SGU test pattern print screen.
6	Repeat steps 2 to 4 to output the Test pattern No.51. (In step 2, press the No51 key)
7	Preform “c. gamma correction” next. Press the NEXT or BACK key until “PWM gamma (Patch)-Gamma correction” will appear in the message display area.
8	To end the adjustment, press the Return key.

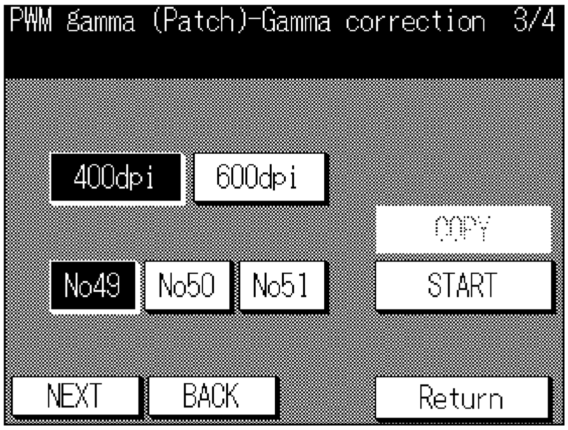
*1: The START key can not be pressed on this screen.

△1 *2: Use the fine paper as a copy paper. If using the recycled paper such as yellow or colored paper, the correction may not be performed correctly.

c. Gamma correction

Read the two test patterns that outputted in “b. SGU pattern print” by scanner.

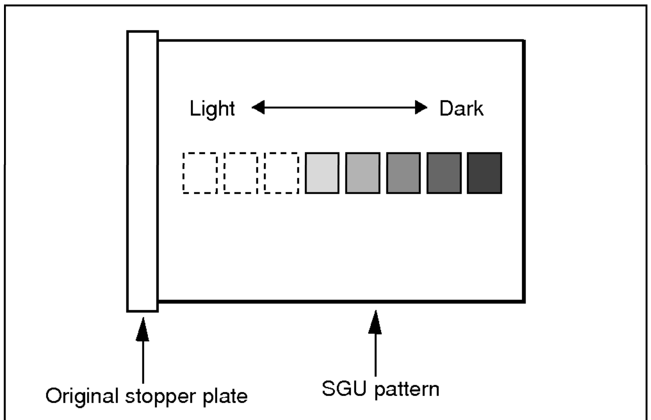
[Gamma correction screen]



Step	Operation procedure
1	After [b. SGU pattern print] (last adjustment item) is completed correctly, then press the NEXT or BACK key until “PWM gamma (Patch)-Gamma correction” will appear in the message display area.
2	**[SGU test pattern print screen]** Press the 400dpi and No50 key.
3	Set the test pattern No.50 that outputted in SGU pattern print on the original glass. (*3,*4)
△1 4	Press the START key to read the test pattern No.50 with the scanner. (*5)
△1 5	Replace the original with No.51 that outputted in SGU pattern print and repeat step 3 and 4. (Press No51 key at step 2.) (*3) When step 4 of No.51 is finished, the correction data is started to calculate, the normal completion or error is displayed. When an error has occurred, perform from a again.
6	Preform “d. gamma curve preparation” next. Press the NEXT or BACK key until “PWM gamma (Patch)-Gamma curve” will appear in the message display area.
7	To end the adjustment, press the Return key.

△1 *3: Read No.51 (darker) after No.50 (lighter) reading. Be careful of the reading order.

*4: Set direction of SGU pattern



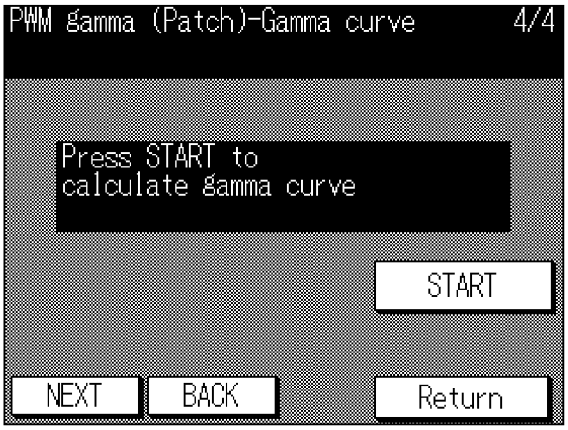
△1 View from the rear of the original.
Place the original so that its print side points downward as usual.

△1 · Be sure to place the SGU test pattern with the light density side against the original stopper plate on the platen. Be sure to close the platen cover.

*5: The COPY key can not be pressed on this screen.

d. Gamma curve preparation

[Gamma curve preparation screen]


PWM gamma (Patch)-Gamma curve 4/4

Press START to calculate gamma curve

Step	Operation procedure
1	After [c. gamma correction] (last adjustment item) is completed correctly, then press the NEXT or BACK key until "PWM gamma (Patch)-Gamma curve" will appear in the message display area.
2	Press the START key. Scanner reads the test pattern No.50.
△1 3	When the gamma curve is prepared, "Completed" will appear in the message display area. Perform "a" to "d" again when an error is displayed. When the normal completion can not be made even if it is repeated several times, clean or replace the related parts.
4	Press the Return key to return to the image quality adjustment menu screen.

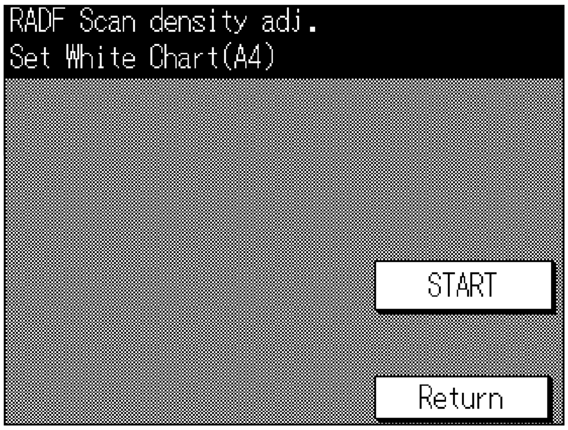
2. RADF scanning density adjustment

When the original glass (1) is replaced, adjusts the density when reading the original with the RADF.

Before preforming this adjustment, be careful of the following items.

(1) The mechanical adjustment, optical adjustment and electrically adjustment of the scanner were completed.
(2) Clean the original glass (1).
(3) The white chart is not dirty or folded.

[RADF scanning density adjustment screen]


RADF Scan density adj.
Set White Chart(A4)

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 6.Image Quality adj key.
3	**[Print density adjustment menu screen]** Press the 2.RADF Scan density adj. key.
4	**[RADF scanning density adjustment screen]** Set the white chart on the RADF. (*1)
5	Press the START key.
6	Check that the "Completed" will appear in the message display area.
7	If the "Error" will appear in the message display area, then repeat steps 4 and 5.
8	Press the Return key to return to the print density adjustment menu screen.

△1 *1: Be sure to set the white chart orientation to the orientation of A4. It will not be adjusted correctly in the orientation of A4R. Place the white chart so that the finer side is the front side.

*2: If "ERROR" is displayed repeatedly, there is a possibility in the adjustment of the scanner machine, optics, electric-related or parts defect.

△3 Error Code Table for PWM Gamma Correction (patch method)

Classification	Error Code	Cause	Condition	Probable location of Abnormally
Dmax Correction	0001	Drum reflective light insufficient	Amount of reflective light from drum does not meet standard even after modifying Dmax sensor LED light amount.	· Dmax sensor cleaning · TCSB (Toner controller sensor board) · PRDB (Printer drive board)
	0002	Developer performance insufficient	Patch density does not meet standard even when developer rotation is maximum	· Check for problems in patch preparation (between charging ~ developing).
	0003	Patch detection defective	Patch on drum cannot be detected	· Check to see whether drum coupling shaft is properly set. · Check for problems in patch preparation (between exposure ~ developing)
	0004	Drum reflective light excessive	Amount of reflective light from drum detected by Dmax sensor is too much.	· TCSB (Toner control sensor board) · PRDB (Printer drive board)
	0005	Dmax sensor output abnormality	Dmax sensor output can hardly be detected	· Check drum unit drawer connection. · TCSB (Toner control sensor board) · PRDB (Printer drive board)
Gamma Correction	0008	Data precision defective	Too many discrepancies in data for proofing by calculation the relationship of the value read by the Dmax sensor patch and the scanner patch density, and the precision of the calculation is defective.	· In a series of operations, errors may occur even when performing proper operations due to discrepancies in the values read by the machine, return to [a. Dmax correction] and repeat 2 ~ 3 times. · Check whether there were any problems with operation procedures, SGU pattern original setting direction, size, image or the like. · Check for abnormalities in SGU output, patch preparation (between charging ~ developer), TCSB (toner controller sensor board), reader related items.
	0400	Insufficient data numbers read	Patch data numbers read by scanner is less than what is required in the above calculation.	
	0800	Insufficient gradation numbers read	Patch level numbers read by scanner is less than what is required in the above calculation.	
	1000	Dmax sensor detection value error	The density of the patch read by the Dmax sensor is almost the same for the lowest and highest density and so the above calculation could not be done.	· Check to see if the drum coupling shaft is properly set. · Check the drawer connection of the drum unit. · Check for problems in the TCSB (Toner control sensor board), patch preparation (between the exposure ~ developing).
Gamma Curve Preparation	0008	Data precision defective	The data for calculating the PWM correction curve from the value read by Dmax sensor patch has too many discrepancies and the precision of the calculation is defective.	· In a series of operations, errors may occur even when performing proper operations due to discrepancies in the values read by the machine, return to [a. Dmax correction] and repeat 2 ~ 3 times. · Check for abnormalities in SGU output, patch preparation (between charging ~ developer), TCSB (toner controller sensor board), reader related items.
	0080	Dmax sensor detection value error	The Dmax sensor value was below the standard and so the PWM correction curve could not be calculated.	
	0100	Dmax sensor detection value error	The density of the patch read by the Dmax sensor is almost the same for the lowest and highest density and so the PWM correction curve could not be calculated.	
	0200	Dmax sensor proofing error	There was no difference between the lowest and highest density in the Dmax sensor ouput converted with the proofing value and so the PWM correction curve could not be calculated.	
	0800	Gamma curve error	The PWM correction curve prepared by calculation has a special attribute that does not allow it to be increased monotonously and so could not be used.	

*1: The error code for Gamma correction and Gamma Curve preparation is displayed in a 4 digit hex value and when multiple errors occur, the results of the sum is displayed. (For example, when error codes 0400 and 0800 happen at the same time, 0C00.)

[8] List Print (Service data Print)

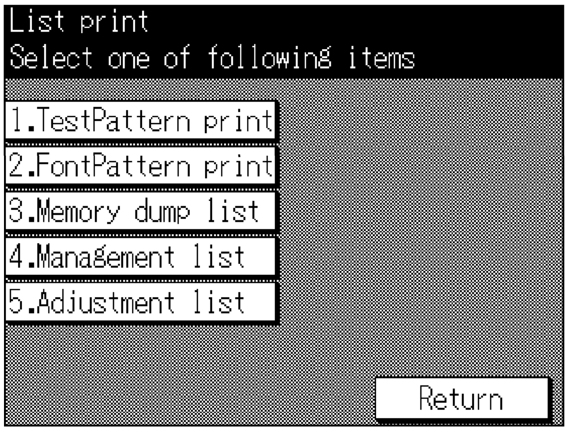
Select the [7. List print] in the 36 mode menu screen, then the list print menu screen will appear.

The following items can be selected on this screen.

a. Test pattern
b. Font pattern
c. Memory dump list
d. Management list
e. Adjustment list

Caution: Do not operate for any list that is not particularly specified.

[List print menu screen]



List print
Select one of following items

Step	Operation procedure
1	Enter the 36 mode.
2	**[36 mode menu screen]** Press the 7.List print key.
3	**[List print menu screen]** Select the desired list to be outputted.
4	**[List print screen]** Only when outputting the memory dump list, set the start address and end address. (*1)
5	Press the NEXT key.
6	**[Basic screen]** Press the Start print button to output the list.
7	Press the C button while pressing the P button to return to the list print screen.
8	To output a different list, repeat steps 3 to 7.
9	Press the Return key to return to the 36 mode menu screen.

*1: The memory damp list is dam-output with both type of the Hex/ASCII.

36 mode adjustment items list

No.	Menu	No.	Sub menu	Circulating menu	Operation outline
1	High voltage adjustment		None	Charging Corona Voltage Adjustment	Adjustment is inhibited in the field.
				Transfer Current Adjustment	
				Separation (AC) Voltage Adjustment	
				Separation (DC) Current Adjustment	
				Charging Grid Voltage Adjustment	After entering a data, press the Start print button to start the operation. Press the Stop/Clear button to stop the operation.
				Developing Bias Adjustment	Adjustment is inhibited in the field.
				Dmax Correction	Adjustment is inhibited in the field.
				L detection Adjustment	Perform the L detection adjustment of the toner supply and register the result in the non-volatile memory. Displays the result and L detection adjustment value at the end. The developing counter is reset.
				Toner automatic supply	Adjustment is inhibited in the field.
2	Timing adjustment	1	Vertical/Horizontal magnification adjustment	Printer vertical magnification adjustment (400dpi)	After adjustment, output the SGU pattern. (No.16)
				Printer vertical magnification adjustment (600dpi)	
				Platen vertical magnification adjustment	After adjustment, make a test copy.
				Platen horizontal magnification adjustment	
				RADF (50%) vertical magnification adjustment	
				RADF (100%) vertical magnification adjustment	
				RADF (200%) vertical magnification adjustment	
				RADF (400%) vertical magnification adjustment	
		2	Restart timing adjustment	Engine restart timing adjustment (All)	After adjustment, output the SGU pattern. (No.16)
				Engine restart timing adjustment (Tray)	
				Engine restart timing adjustment (DB1)	
				Engine restart timing adjustment (DB2)	
				Engine restart timing adjustment (DB3)	
				Engine restart timing adjustment (By-pass)	
				Engine restart timing adjustment (ADU)	
				RADF timing adjustment (front side)	After adjustment, make a test copy.
				RADF timing adjustment (back side)	

No.	Menu	No.	Sub menu	Circulating menu	Operation outline
2	Timing adjustment	3	Paper feed loop amount adjustment	Paper feed loop amount adjustment (ADU, small size)	After adjustment, output the SGU pattern. (No.16)
				Paper feed loop amount adjustment (ADU, large size)	
				Paper feed loop amount adjustment (Tray, small size)	
				Paper feed loop amount adjustment (Tray, large size)	
				Paper feed loop amount adjustment (By-pass, plain paper)	
				Paper feed loop amount adjustment (By-pass, thick paper)	
				Paper feed loop amount adjustment (DB)	
				ADU loop amount adjustment	
				RADF loop amount adjustment (front side)	After adjustment, make a test copy.
				RADF loop amount adjustment (back side)	
		4	Leading edge original erasure adjustment	None	After adjustment, make a test copy.
		5	Centering adjustment	Image writing centering adjustment (All)	After adjustment, output the SGU pattern. (No.16)
				Image writing centering adjustment (Tray)	
				Image writing centering adjustment (DB1)	
				Image writing centering adjustment (DB2)	
				Image writing centering adjustment (DB3)	
				Image writing centering adjustment (By-pass)	
				Image writing centering adjustment (ADU)(Co/L/M/S/SS)	
				Platen centering adjustment	After adjustment, make a test copy.
				RADF centering adjustment (front side)	
				RADF centering adjustment (back side)	
		6	Image read point adjustment	Point of origin adjustment	
		7	Resetting standard data	Vertical/Horizontal magnification adjustment	Return the adjustment data to the factory setting.
				Restart timing adjustment	
				Paper feed loop amount adjustment	
				Leading edge original erasure adjustment	
				Centering adjustment	
				Image read point adjustment	

No.	Menu	No.	Sub menu	Circulating menu	Operation outline
3	Running test mode	1	Intermittent copy mode	None	After selection, operation starts.
		2	Paperless intermittent copy mode		
		3	Paperless mode		
		4	Paper less endless mode		
		5	Running mode		
4	Teat pattern output		None	None	Output the SGU pattern according to the specified number. The resolution can be switched with 400/600dpi.
5	Density adjustment	1	Test pattern density adjustment	None	After adjustment, output the specified SGU pattern.
6	Image quality adjustment	1	PWM gamma correction(Patch method)	Dmax correction	Perform the Dmax correction and register the result in the non-volatile memory. Displays the result and DmaxLED/sleeve rotation value at Dmax correction completion.
				SGU pattern print	Output the specified SGU pattern from the basic screen.
				Gamma correction	Read the output SGU pattern using the scanner, then calculate the PWM gamma correction value and display the result.
				Gamma curve preparation	Create the gamma curve with the start Print button ON.
		2	RADF scanning density adjustment	None	Read the white chart to adjust the density.
7	List print	1	Test pattern	None	Grid pattern of the 2-dot in line width and 500 dot in line interval.
		2	Font pattern	None	Print out the stored font pattern.
		3	Memory dump list	None	Damp print out the stored data from the specified address with both type of the Hex and ASCII.
		4	Management list	None	Output the machine condition, counter data and jam history and so on.
		5	Adjustment list	None	Output only the 25/36 mode adjustment value in the management list.

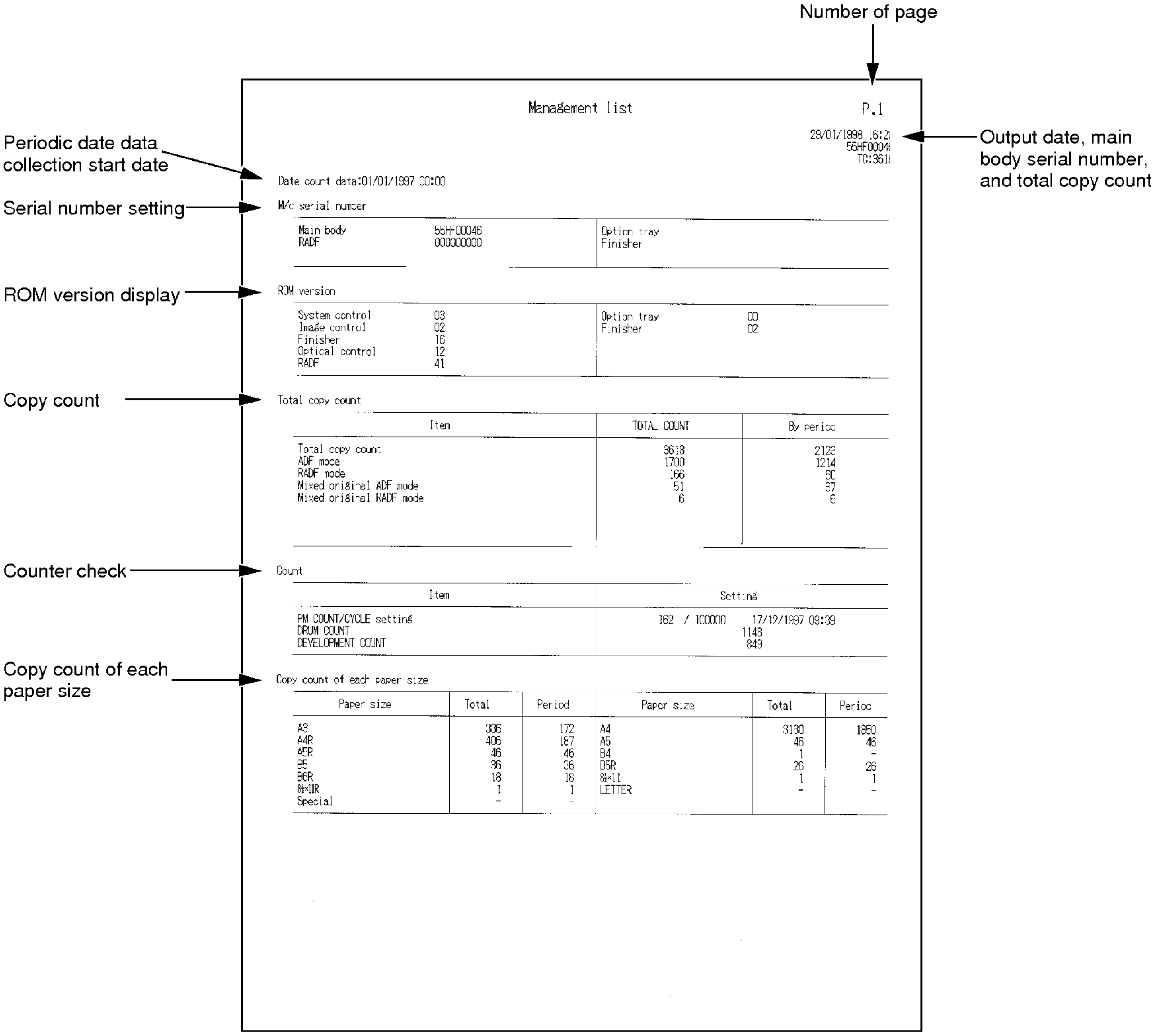
Management list

P. 1

[Description items]

- Serial number setting
- ROM version display (ROM version for the control board)
- Copy count (Data collection 1)
  Total count and periodic date count of each mode.
- Counter check
- Copy count of each paper size (Data collection 2)
  Total count and periodic date count of each paper size

Management list



Number of page

Periodic date data collection start date

Serial number setting

ROM version display

Copy count

Counter check

Copy count of each paper size

Output date, main body serial number, and total copy count

Management list

P.1

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Date count data:01/01/1997 00:00

M/c serial number

Main body	55HF00046	Option tray	
RADF	000000000	Finisher	

ROM version

System control	03	Option tray	00
Image control	02	Finisher	02
Finisher	16		
Optical control	12		
RADF	41		

Total copy count

Item	TOTAL COUNT	By period
Total copy count	3618	2123
ADF mode	1700	1214
RADF mode	166	60
Mixed original ADF mode	51	37
Mixed original RADF mode	6	6

Count

Item	Setting
PM COUNT/CYCLE setting	162 / 100000 17/12/1997 09:39
DRUM COUNT	1148
DEVELOPMENT COUNT	849

Copy count of each paper size

Paper size	Total	Period	Paper size	Total	Period
A3	386	172	A4	3130	1850
A4R	406	187	A5	46	46
A5R	46	46	B4	1	-
B5	36	36	B5R	26	26
B6R	18	18	8½×11	1	1
8½×11R	1	1	LETTER	-	-
Special	-	-			

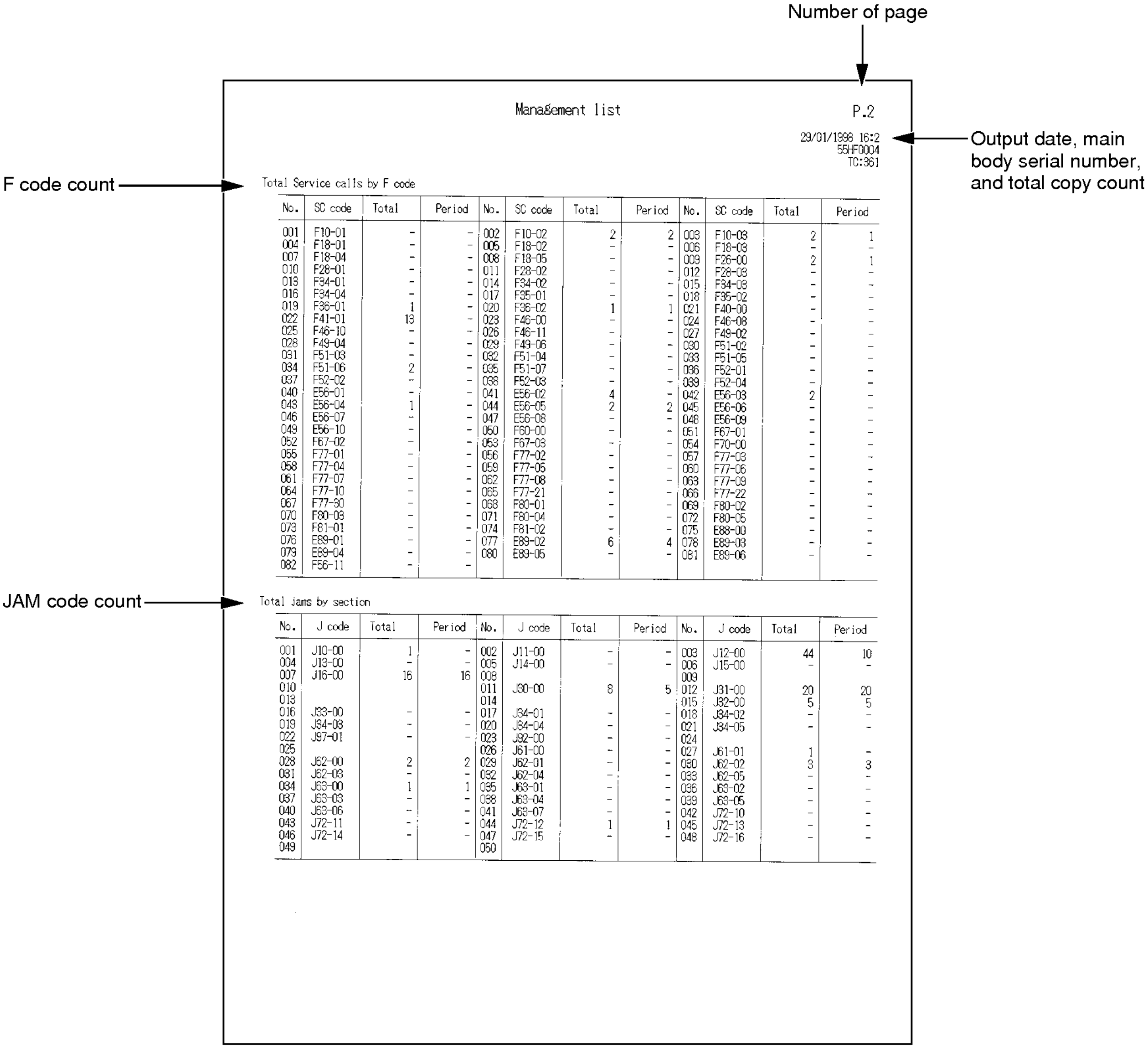
Management list

P. 2

[Description items]

- F(S/C) code count (Data collection 4)
  Total count and periodic date count of each code.
- JAM code count (Data collection 2)
  Total count and periodic date count of each code.

Management list


Number of page
Output date, main body serial number, and total copy count
F code count
JAM code count

Management list P.2

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Total Service calls by F code

No.	SC code	Total	Period	No.	SC code	Total	Period	No.	SC code	Total	Period
001	F10-01	-	-	002	F10-02	2	2	003	F10-03	2	1
004	F18-01	-	-	005	F18-02	-	-	006	F18-03	-	-
007	F18-04	-	-	008	F18-05	-	-	009	F26-00	2	1
010	F28-01	-	-	011	F28-02	-	-	012	F28-03	-	-
013	F34-01	-	-	014	F34-02	-	-	015	F34-03	-	-
016	F34-04	-	-	017	F35-01	-	-	018	F35-02	-	-
019	F36-01	1	-	020	F36-02	1	1	021	F40-00	-	-
022	F41-01	13	-	023	F46-00	-	-	024	F46-08	-	-
025	F46-10	-	-	026	F46-11	-	-	027	F49-02	-	-
028	F49-04	-	-	029	F49-06	-	-	030	F51-02	-	-
031	F51-03	-	-	032	F51-04	-	-	033	F51-05	-	-
034	F51-06	2	-	035	F51-07	-	-	036	F52-01	-	-
037	F52-02	-	-	038	F52-03	-	-	039	F52-04	-	-
040	E56-01	-	-	041	E56-02	4	-	042	E56-03	2	-
043	E56-04	1	-	044	E56-05	2	2	045	E56-06	-	-
046	E56-07	-	-	047	E56-08	-	-	048	E56-09	-	-
049	E56-10	-	-	050	F60-00	-	-	051	F67-01	-	-
052	F67-02	-	-	053	F67-03	-	-	054	F70-00	-	-
055	F77-01	-	-	056	F77-02	-	-	057	F77-03	-	-
058	F77-04	-	-	059	F77-05	-	-	060	F77-06	-	-
061	F77-07	-	-	062	F77-08	-	-	063	F77-09	-	-
064	F77-10	-	-	065	F77-21	-	-	066	F77-22	-	-
067	F77-30	-	-	068	F80-01	-	-	069	F80-02	-	-
070	F80-03	-	-	071	F80-04	-	-	072	F80-05	-	-
073	F81-01	-	-	074	F81-02	-	-	075	E88-00	-	-
076	E89-01	-	-	077	E89-02	6	4	078	E89-03	-	-
079	E89-04	-	-	080	E89-05	-	-	081	E89-06	-	-
082	F56-11	-	-								

Total jams by section

No.	J code	Total	Period	No.	J code	Total	Period	No.	J code	Total	Period
001	J10-00	1	-	002	J11-00	-	-	003	J12-00	44	10
004	J13-00	-	-	005	J14-00	-	-	006	J15-00	-	-
007	J16-00	16	16	008				009			
010				011	J30-00	8	5	012	J31-00	20	20
013				014				015	J32-00	5	5
016	J33-00	-	-	017	J34-01	-	-	018	J34-02	-	-
019	J34-03	-	-	020	J34-04	-	-	021	J34-05	-	-
022	J97-01	-	-	023	J92-00	-	-	024			
025				026	J61-00	-	-	027	J61-01	1	-
028	J62-00	2	2	029	J62-01	-	-	030	J62-02	3	3
031	J62-03	-	-	032	J62-04	-	-	033	J62-05	-	-
034	J63-00	1	1	035	J63-01	-	-	036	J63-02	-	-
037	J63-03	-	-	038	J63-04	-	-	039	J63-05	-	-
040	J63-06	-	-	041	J63-07	-	-	042	J72-10	-	-
043	J72-11	-	-	044	J72-12	1	1	045	J72-13	-	-
046	J72-14	-	-	047	J72-15	-	-	048	J72-16	-	-
049				050							

Management list

P. 3

[Description items]

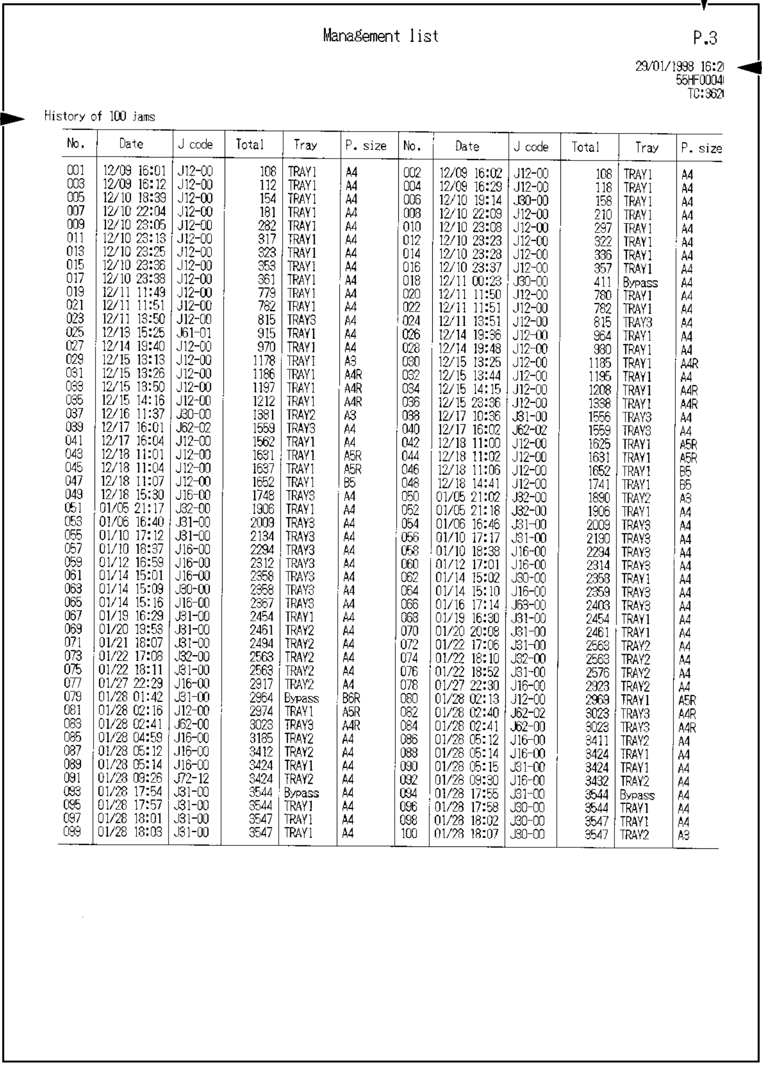
- The last JAM history
  The last 100 JAM data, code, total copy count, tray and paper size

Management list

Number of page

Output date, main body serial number, and total copy count

The last JAM history



Management list

P.3

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History of 100 jams

No.	Date	J code	Total	Tray	P. size	No.	Date	J code	Total	Tray	P. size
001	12/09 16:01	J12-00	108	TRAY1	A4	002	12/09 16:02	J12-00	108	TRAY1	A4
003	12/09 16:12	J12-00	112	TRAY1	A4	004	12/09 16:29	J12-00	118	TRAY1	A4
005	12/10 18:39	J12-00	154	TRAY1	A4	006	12/10 19:14	J30-00	158	TRAY1	A4
007	12/10 22:04	J12-00	181	TRAY1	A4	008	12/10 22:09	J12-00	210	TRAY1	A4
009	12/10 23:05	J12-00	282	TRAY1	A4	010	12/10 23:08	J12-00	297	TRAY1	A4
011	12/10 23:13	J12-00	317	TRAY1	A4	012	12/10 23:23	J12-00	322	TRAY1	A4
013	12/10 23:25	J12-00	323	TRAY1	A4	014	12/10 23:28	J12-00	336	TRAY1	A4
015	12/10 23:36	J12-00	353	TRAY1	A4	016	12/10 23:37	J12-00	357	TRAY1	A4
017	12/10 23:38	J12-00	361	TRAY1	A4	018	12/11 00:23	J30-00	411	Bypass	A4
019	12/11 11:49	J12-00	779	TRAY1	A4	020	12/11 11:50	J12-00	780	TRAY1	A4
021	12/11 11:51	J12-00	782	TRAY1	A4	022	12/11 11:51	J12-00	782	TRAY1	A4
023	12/11 13:50	J12-00	815	TRAY3	A4	024	12/11 13:51	J12-00	815	TRAY3	A4
025	12/13 15:25	J61-01	915	TRAY1	A4	026	12/14 19:36	J12-00	964	TRAY1	A4
027	12/14 19:40	J12-00	970	TRAY1	A4	028	12/14 19:48	J12-00	980	TRAY1	A4
029	12/15 13:13	J12-00	1178	TRAY1	A3	030	12/15 13:25	J12-00	1185	TRAY1	A4R
031	12/15 13:26	J12-00	1186	TRAY1	A4R	032	12/15 13:44	J12-00	1195	TRAY1	A4
033	12/15 13:50	J12-00	1197	TRAY1	A4R	034	12/15 14:15	J12-00	1208	TRAY1	A4R
035	12/15 14:16	J12-00	1212	TRAY1	A4R	036	12/15 23:36	J12-00	1338	TRAY1	A4R
037	12/16 11:37	J30-00	1381	TRAY2	A3	038	12/17 10:36	J31-00	1556	TRAY3	A4
039	12/17 16:01	J62-02	1559	TRAY3	A4	040	12/17 16:02	J62-02	1559	TRAY3	A4
041	12/17 16:04	J12-00	1562	TRAY1	A4	042	12/18 11:00	J12-00	1625	TRAY1	A5R
043	12/18 11:01	J12-00	1631	TRAY1	A5R	044	12/18 11:02	J12-00	1631	TRAY1	A5R
045	12/18 11:04	J12-00	1637	TRAY1	A5R	046	12/18 11:06	J12-00	1652	TRAY1	B5
047	12/18 11:07	J12-00	1652	TRAY1	B5	048	12/18 14:41	J12-00	1741	TRAY1	B5
049	12/18 15:30	J16-00	1748	TRAY3	A4	050	01/05 21:02	J32-00	1890	TRAY2	A3
051	01/05 21:17	J32-00	1906	TRAY1	A4	052	01/05 21:18	J32-00	1906	TRAY1	A4
053	01/06 16:40	J31-00	2009	TRAY3	A4	054	01/06 16:46	J31-00	2009	TRAY3	A4
055	01/10 17:12	J31-00	2134	TRAY3	A4	056	01/10 17:17	J31-00	2190	TRAY3	A4
057	01/10 18:37	J16-00	2294	TRAY3	A4	058	01/10 18:38	J16-00	2294	TRAY3	A4
059	01/12 16:59	J16-00	2312	TRAY3	A4	060	01/12 17:01	J16-00	2314	TRAY3	A4
061	01/14 15:01	J16-00	2358	TRAY3	A4	062	01/14 15:02	J30-00	2358	TRAY1	A4
063	01/14 15:09	J30-00	2358	TRAY3	A4	064	01/14 15:10	J16-00	2359	TRAY3	A4
065	01/14 15:16	J16-00	2367	TRAY3	A4	066	01/16 17:14	J63-00	2403	TRAY3	A4
067	01/19 16:29	J31-00	2454	TRAY1	A4	068	01/19 16:30	J31-00	2454	TRAY1	A4
069	01/20 19:53	J31-00	2461	TRAY2	A4	070	01/20 20:08	J31-00	2461	TRAY1	A4
071	01/21 18:07	J31-00	2494	TRAY2	A4	072	01/22 17:06	J31-00	2563	TRAY2	A4
073	01/22 17:08	J32-00	2563	TRAY2	A4	074	01/22 18:10	J32-00	2563	TRAY2	A4
075	01/22 18:11	J31-00	2563	TRAY2	A4	076	01/22 18:52	J31-00	2576	TRAY2	A4
077	01/27 22:29	J16-00	2917	TRAY2	A4	078	01/27 22:30	J16-00	2923	TRAY2	A4
079	01/28 01:42	J31-00	2964	Bypass	B6R	080	01/28 02:13	J12-00	2969	TRAY1	A5R
081	01/28 02:16	J12-00	2974	TRAY1	A5R	082	01/28 02:40	J62-02	3023	TRAY3	A4R
083	01/28 02:41	J62-00	3023	TRAY3	A4R	084	01/28 02:41	J62-00	3023	TRAY3	A4R
085	01/28 04:59	J16-00	3185	TRAY2	A4	086	01/28 05:12	J16-00	3411	TRAY2	A4
087	01/28 05:12	J16-00	3412	TRAY2	A4	088	01/28 05:14	J16-00	3424	TRAY1	A4
089	01/28 05:14	J16-00	3424	TRAY1	A4	090	01/28 05:15	J31-00	3424	TRAY1	A4
091	01/28 09:26	J72-12	3424	TRAY2	A4	092	01/28 09:30	J16-00	3432	TRAY2	A4
093	01/28 17:54	J31-00	3544	Bypass	A4	094	01/28 17:55	J31-00	3544	Bypass	A4
095	01/28 17:57	J31-00	3544	TRAY1	A4	096	01/28 17:58	J30-00	3544	TRAY1	A4
097	01/28 18:01	J31-00	3547	TRAY1	A4	098	01/28 18:02	J30-00	3547	TRAY1	A4
099	01/28 18:03	J31-00	3547	TRAY1	A4	100	01/28 18:07	J30-00	3547	TRAY2	A3

Management list

P. 4

[Description items]

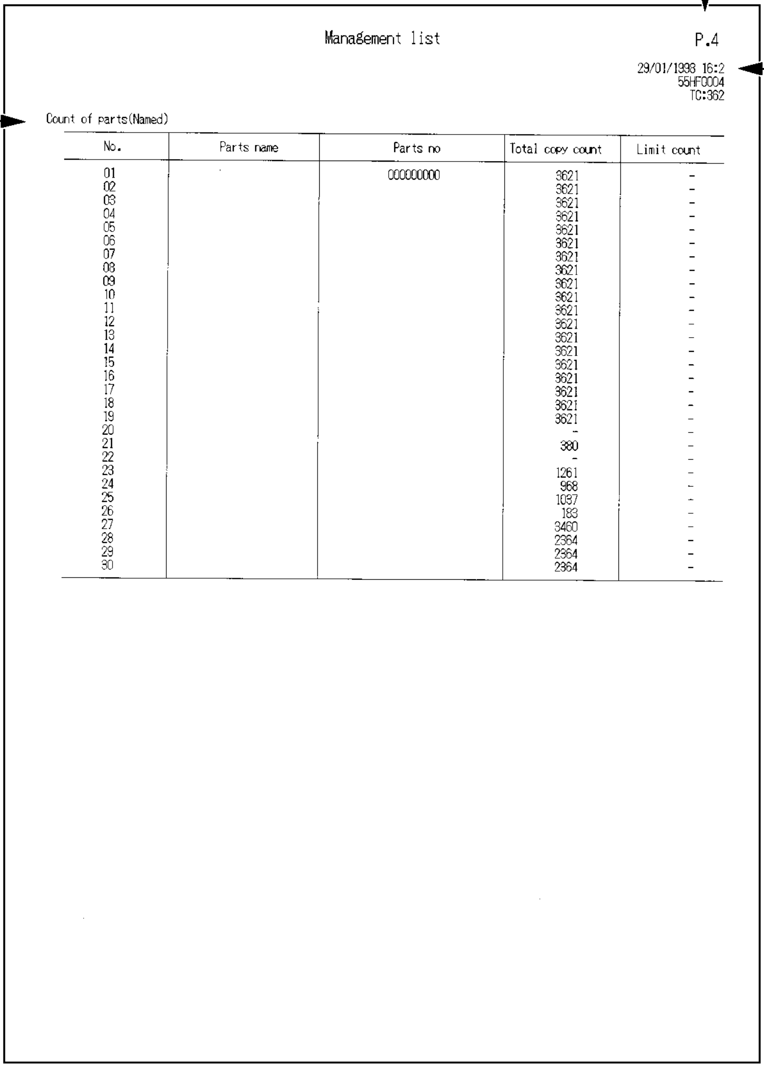
- Copy count of parts (parts to be replaced (Named; arbitrarily))
  Parts name, parts number, copy count and limit value of each part.

Management list

Number of page

Copy count of each parts (parts to be replaced (Named; arbitrarily))

Output date, main body serial number, and total copy count



Management list P.4

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Count of parts(Named)

No.	Parts name	Parts no	Total copy count	Limit count
01		000000000	3621	-
02			3621	-
03			3621	-
04			3621	-
05			3621	-
06			3621	-
07			3621	-
08			3621	-
09			3621	-
10			3621	-
11			3621	-
12			3621	-
13			3621	-
14			3621	-
15			3621	-
16			3621	-
17			3621	-
18			3621	-
19			3621	-
20			-	-
21			380	-
22			-	-
23			1261	-
24			968	-
25			1037	-
26			183	-
27			3460	-
28			2364	-
29			2364	-
30			2364	-

Management list

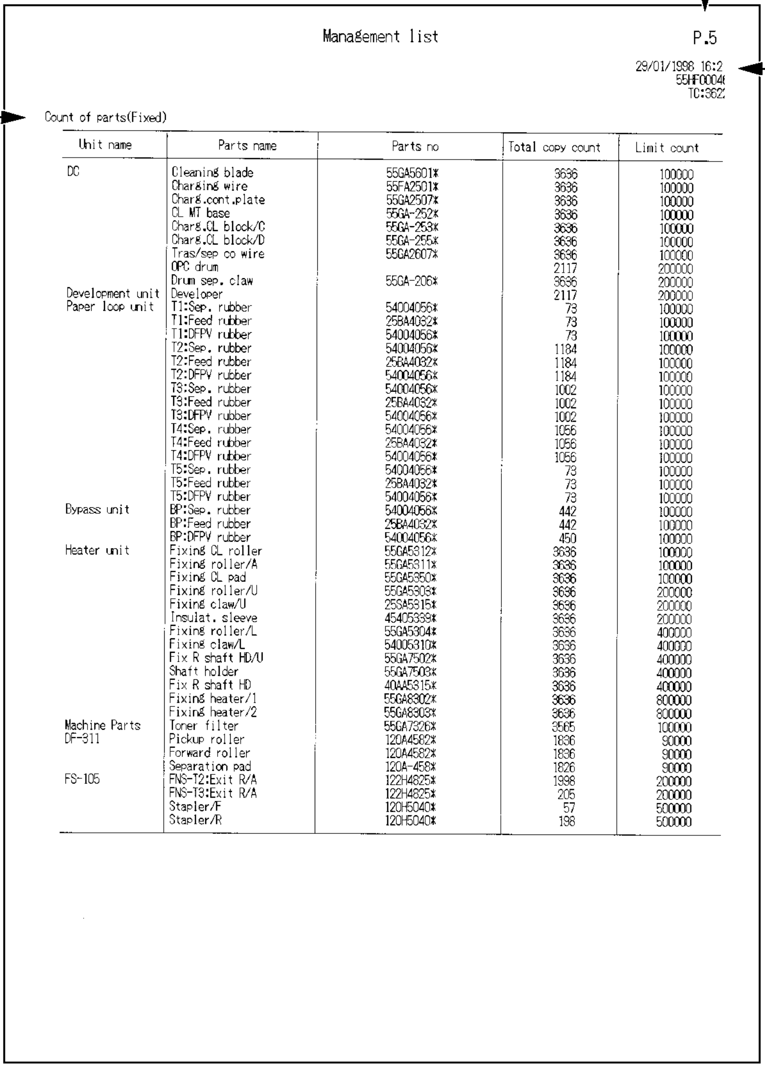
P. 5

[Description items]

- Copy count of parts (parts to be replaced (Fixed))
  Parts name, Parts number, copy count and limit value of each unit.

Management list

Number of page



Management list

P.5

29/01/1998 16:2
55HF0004
TC:362

Count of parts(Fixed)

Unit name	Parts name	Parts no	Total copy count	Limit count
DC	Cleaning blade	55GA5601*	3636	100000
	Charging wire	55FA2501*	3636	100000
	Charg.cont.plate	55GA2507*	3636	100000
	CL MT base	55GA-252*	3636	100000
	Charg.CL block/C	55GA-253*	3636	100000
	Charg.CL block/D	55GA-255*	3636	100000
	Tras/sep co wire	55GA2607*	3636	100000
	OPC drum		2117	200000
	Drum sep. claw	55GA-206*	3636	200000
Development unit	Developer		2117	200000
Paper loop unit	T1:Sep. rubber	54004056*	73	100000
	T1:Feed rubber	25BA4032*	73	100000
	T1:DFPV rubber	54004056*	73	100000
	T2:Sep. rubber	54004056*	1184	100000
	T2:Feed rubber	25BA4032*	1184	100000
	T2:DFPV rubber	54004056*	1184	100000
	T3:Sep. rubber	54004056*	1002	100000
	T3:Feed rubber	25BA4032*	1002	100000
	T3:DFPV rubber	54004056*	1002	100000
	T4:Sep. rubber	54004056*	1056	100000
	T4:Feed rubber	25BA4032*	1056	100000
	T4:DFPV rubber	54004056*	1056	100000
	T5:Sep. rubber	54004056*	73	100000
	T5:Feed rubber	25BA4032*	73	100000
	T5:DFPV rubber	54004056*	73	100000
Bypass unit	BP:Sep. rubber	54004056*	442	100000
	BP:Feed rubber	25BA4032*	442	100000
	BP:DFPV rubber	54004056*	450	100000
Heater unit	Fixing CL roller	55GA5312*	3636	100000
	Fixing roller/A	55GA5311*	3636	100000
	Fixing CL pad	55GA5350*	3636	100000
	Fixing roller/U	55GA5303*	3636	200000
	Fixing claw/U	25SA5315*	3636	200000
	Insulat. sleeve	45405339*	3636	200000
	Fixing roller/L	55GA5304*	3636	400000
	Fixing claw/L	54005310*	3636	400000
	Fix R shaft HD/U	55GA7502*	3636	400000
	Shaft holder	55GA7503*	3636	400000
	Fix R shaft HD	40AA5315*	3636	400000
	Fixing heater/1	55GA8302*	3636	800000
	Fixing heater/2	55GA8303*	3636	800000
Machine Parts	Toner filter	55GA7326*	3565	100000
DF-311	Pickup roller	120A4582*	1836	90000
	Forward roller	120A4582*	1836	90000
	Separation pad	120A-458*	1826	90000
FS-105	FNS-T2:Exit R/A	122H4825*	1998	200000
	FNS-T3:Exit R/A	122H4825*	205	200000
	Stapler/F	120H5040*	57	500000
	Stapler/R	120H5040*	198	500000

Copy count of each parts (parts to be replaced (Fixed))

Output date, main body serial number, and total copy count

Management list

P. 6

[Description items]

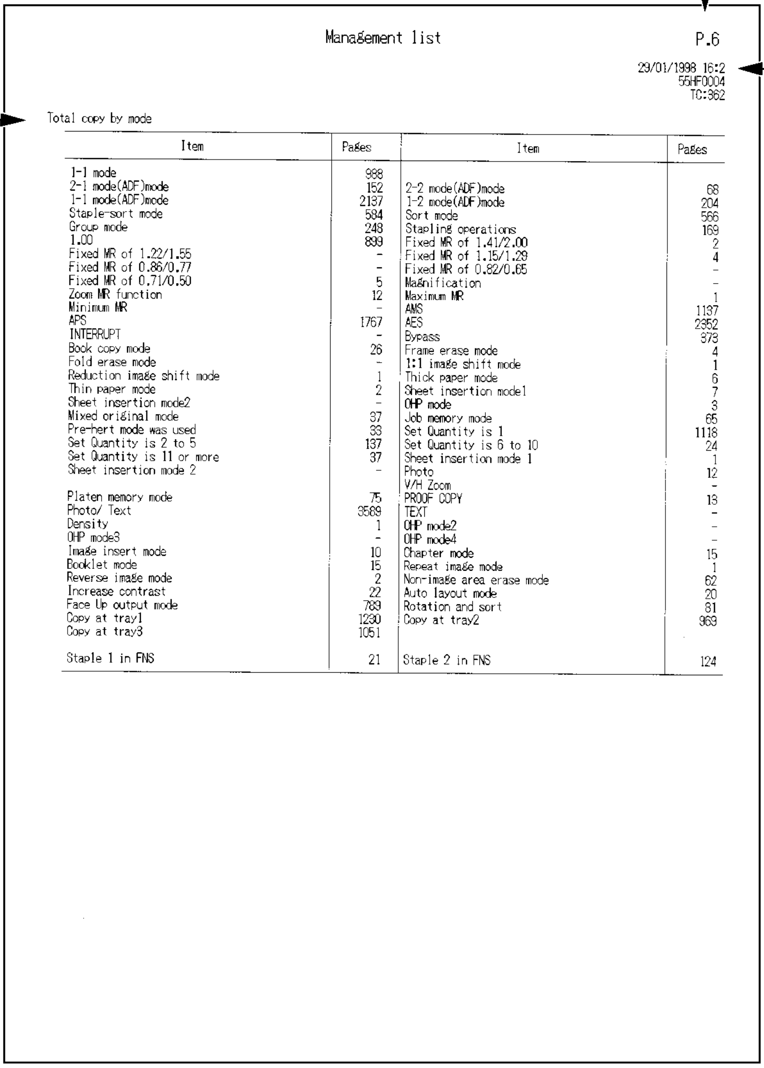
- Copy count of each copy mode (Data collection 3)

Management list

Number of page

Output date, main body serial number, and total copy count

Copy count of each copy mode



Management list P.6

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55HF0004
TC:362

Total copy by mode

Item	Pages	Item	Pages
1-1 mode	988		
2-1 mode(ADF)mode	152	2-2 mode(ADF)mode	68
1-1 mode(ADF)mode	2137	1-2 mode(ADF)mode	204
Staple-sort mode	584	Sort mode	566
Group mode	248	Stapling operations	169
1.00	899	Fixed MR of 1.41/2.00	2
Fixed MR of 1.22/1.55	-	Fixed MR of 1.15/1.29	4
Fixed MR of 0.86/0.77	-	Fixed MR of 0.82/0.65	-
Fixed MR of 0.71/0.50	5	Magnification	-
Zoom MR function	12	Maximum MR	1
Minimum MR	-	AMS	1137
APS	1767	AES	2352
INTERRUPT	-	Bypass	373
Book copy mode	26	Frame erase mode	4
Fold erase mode	-	1:1 image shift mode	1
Reduction image shift mode	1	Thick paper mode	6
Thin paper mode	2	Sheet insertion mode1	7
Sheet insertion mode2	-	OHP mode	3
Mixed original mode	37	Job memory mode	65
Pre-hert mode was used	33	Set Quantity is 1	1118
Set Quantity is 2 to 5	137	Set Quantity is 6 to 10	24
Set Quantity is 11 or more	37	Sheet insertion mode 1	1
Sheet insertion mode 2	-	Photo	12
		V/H Zoom	-
Platen memory mode	75	PROOF COPY	13
Photo/ Text	3589	TEXT	-
Density	1	OHP mode2	-
OHP mode3	-	OHP mode4	-
Image insert mode	10	Chapter mode	15
Booklet mode	15	Repeat image mode	1
Reverse image mode	2	Non-image area erase mode	62
Increase contrast	22	Auto layout mode	20
Face Up output mode	789	Rotation and sort	81
Copy at tray1	1230	Copy at tray2	969
Copy at tray3	1051		
Staple 1 in FNS	21	Staple 2 in FNS	124

Management list

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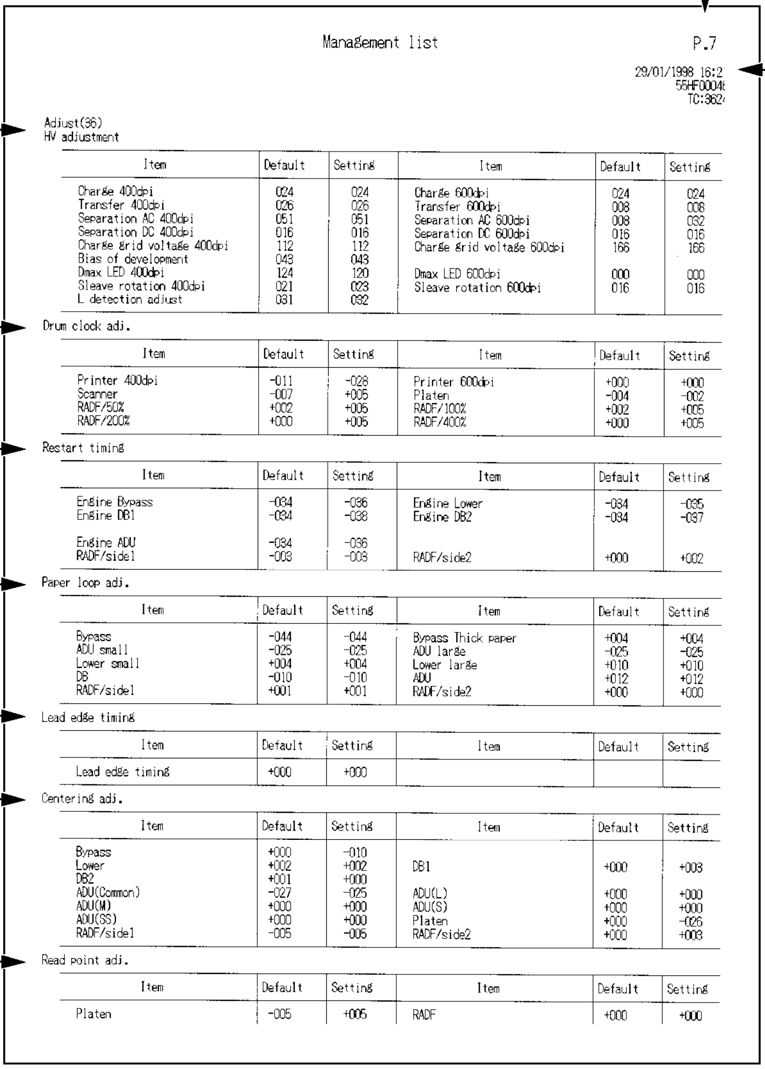
[Description items]

- Adjustment value (36 mode)
  Default values and setting values of the High voltage adjustment, Vertical/Horizontal magnification adjustment, restart timing adjustment, paper feed loop amount adjustment, leading edge original erasure adjustment, centering adjustment and image read point adjustment.

  * Adjustment list Page 1.

Management list



Number of page

Output date, main body serial number, and total copy count

High voltage adjustment

Vertical/Horizontal magnification adjustment

Restart timing adjustment

Paper feed loop amount adjustment

Leading edge original erasure adjustment

Centering adjustment

Image read point adjustment

Management list

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Adjust(36)
HV adjustment

Item	Default	Setting	Item	Default	Setting
Charge 400dpi	024	024	Charge 600dpi	024	024
Transfer 400dpi	026	026	Transfer 600dpi	008	008
Separation AC 400dpi	051	051	Separation AC 600dpi	008	032
Separation DC 400dpi	016	016	Separation DC 600dpi	016	016
Charge grid voltage 400dpi	112	112	Charge grid voltage 600dpi	166	166
Bias of development	043	043			
Dmax LED 400dpi	124	120	Dmax LED 600dpi	000	000
Sleave rotation 400dpi	021	023	Sleave rotation 600dpi	016	016
L detection adjust	031	032			

Drum clock adj.

Item	Default	Setting	Item	Default	Setting
Printer 400dpi	-011	-028	Printer 600dpi	+000	+000
Scanner	-007	+005	Platen	-004	-002
RADF/50%	+002	+005	RADF/100%	+002	+005
RADF/200%	+000	+005	RADF/400%	+000	+005

Restart timing

Item	Default	Setting	Item	Default	Setting
Engine Bypass	-034	-036	Engine Lower	-034	-035
Engine DB1	-034	-038	Engine DB2	-034	-037
Engine ADU	-034	-036			
RADF/side1	-003	-003	RADF/side2	+000	+002

Paper loop adj.

Item	Default	Setting	Item	Default	Setting
Bypass	-044	-044	Bypass Thick paper	+004	+004
ADU small	-025	-025	ADU large	-025	-025
Lower small	+004	+004	Lower large	+010	+010
DB	-010	-010	ADU	+012	+012
RADF/side1	+001	+001	RADF/side2	+000	+000

Lead edge timing

Item	Default	Setting	Item	Default	Setting
Lead edge timing	+000	+000			

Centering adj.

Item	Default	Setting	Item	Default	Setting
Bypass	+000	-010			
Lower	+002	+002	DB1	+000	+003
DB2	+001	+000			
ADU(Common)	-027	-025	ADU(L)	+000	+000
ADU(M)	+000	+000	ADU(S)	+000	+000
ADU(SS)	+000	+000	Platen	+000	-026
RADF/side1	-005	-005	RADF/side2	+000	+003

Read point adj.

Item	Default	Setting	Item	Default	Setting
Platen	-005	+005	RADF	+000	+000

Management list

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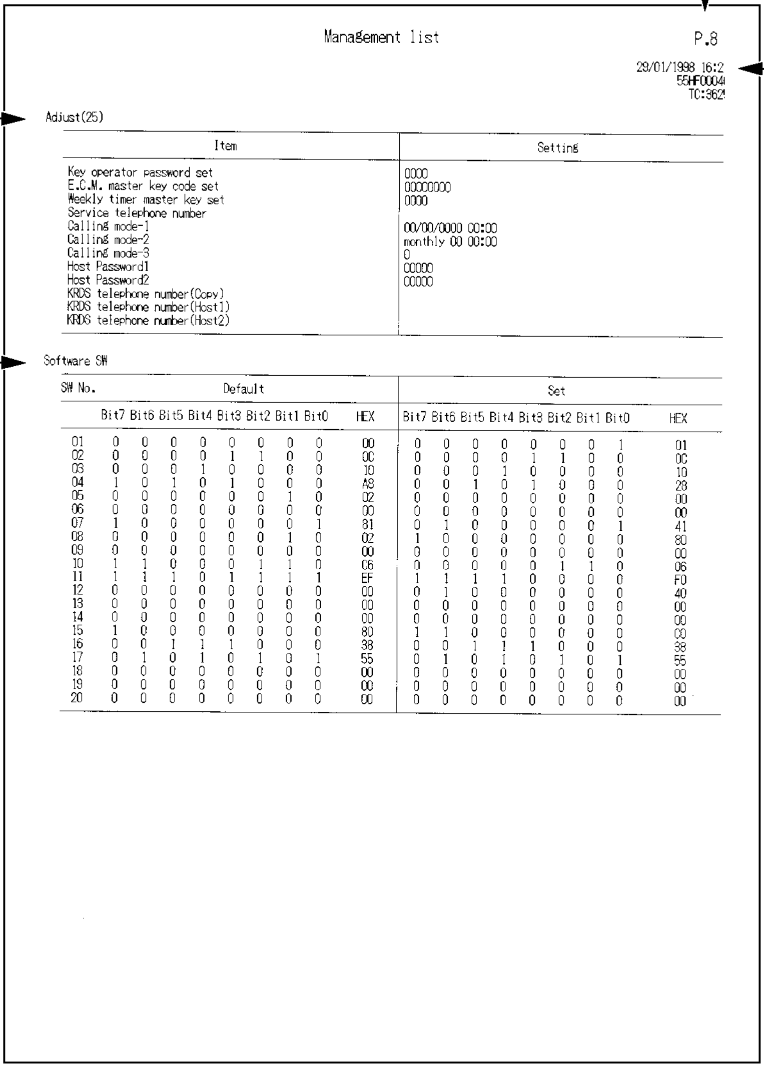
[Description items]

- Adjustment value (25 mode)
  Setting values of each adjustment item.
- Software SW setting
  Default values and setting values of each DIPSW.

* Adjustment list Page 2.

Management list

Number of page



Adjustment values (25 mode)

Software SW settings

Output date, main body serial number, and total copy count

Management list

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Adjust(25)

Item	Setting
Key operator password set	0000
E.C.M. master key code set	00000000
Weekly timer master key set	0000
Service telephone number	
Calling mode-1	00/00/0000 00:00
Calling mode-2	monthly 00 00:00
Calling mode-3	0
Host Password1	00000
Host Password2	00000
KRDS telephone number(Copy)	
KRDS telephone number(Host1)	
KRDS telephone number(Host2)	

Software SW

SW No.	Default									Set								
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	HEX	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	HEX
01	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	1	01
02	0	0	0	0	1	1	0	0	0C	0	0	0	0	1	1	0	0	0C
03	0	0	0	1	0	0	0	0	10	0	0	0	1	0	0	0	0	10
04	1	0	1	0	1	0	0	0	A8	0	0	1	0	1	0	0	0	28
05	0	0	0	0	0	0	1	0	02	0	0	0	0	0	0	0	0	00
06	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
07	1	0	0	0	0	0	0	1	81	0	1	0	0	0	0	0	1	41
08	0	0	0	0	0	0	1	0	02	1	0	0	0	0	0	0	0	80
09	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
10	1	1	0	0	0	1	1	0	C6	0	0	0	0	0	1	1	0	06
11	1	1	1	0	1	1	1	1	EF	1	1	1	1	0	0	0	0	F0
12	0	0	0	0	0	0	0	0	00	0	1	0	0	0	0	0	0	40
13	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
14	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
15	1	0	0	0	0	0	0	0	80	1	1	0	0	0	0	0	0	C0
16	0	0	1	1	1	0	0	0	38	0	0	1	1	1	0	0	0	38
17	0	1	0	1	0	1	0	1	55	0	1	0	1	0	1	0	1	55
18	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
19	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
20	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00

Management list

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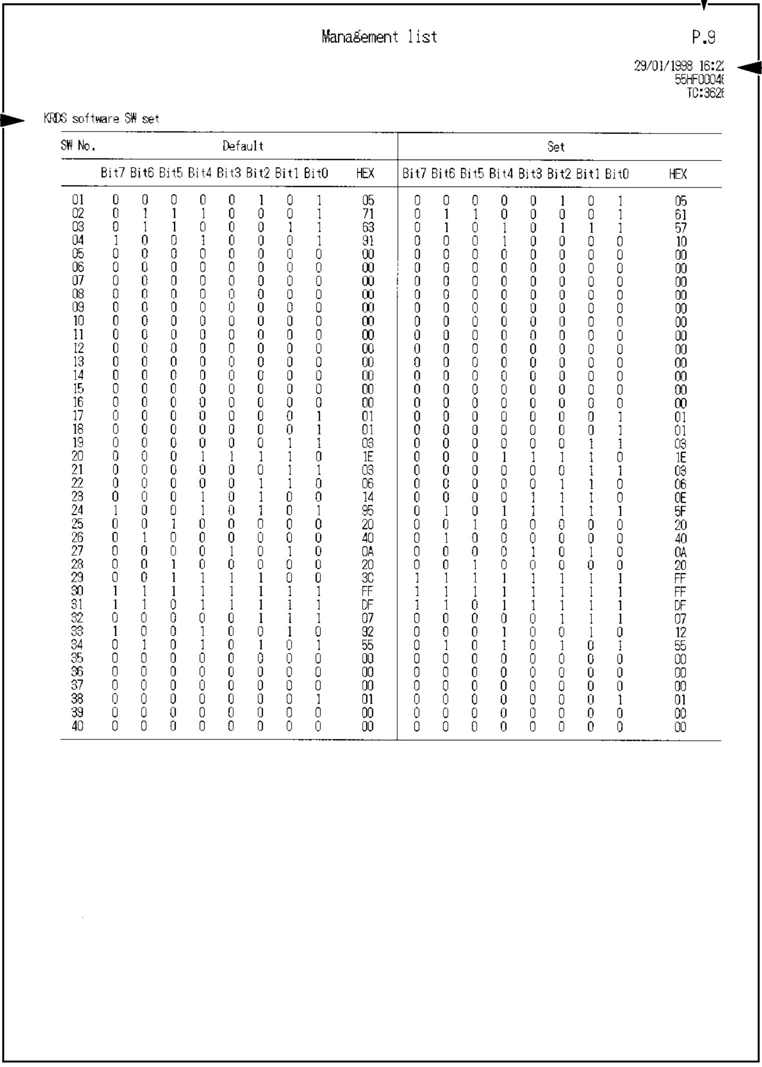
[Description items]

- KRDS Software SW setting
  Default values and setting values of each DIPSW.

Management list



Number of page

Output date, main body serial number, and total copy count

KRDS Software SW setting

Management list P.9

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KRDS software SW set

SW No.	Default									Set								
	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	HEX	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0	HEX
01	0	0	0	0	0	1	0	1	05	0	0	0	0	0	1	0	1	05
02	0	1	1	1	0	0	0	1	71	0	1	1	0	0	0	0	1	61
03	0	1	1	0	0	0	1	1	63	0	1	0	1	0	1	1	1	57
04	1	0	0	1	0	0	0	1	91	0	0	0	1	0	0	0	0	10
05	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
06	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
07	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
08	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
09	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
10	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
11	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
12	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
13	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
14	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
15	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
16	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
17	0	0	0	0	0	0	0	1	01	0	0	0	0	0	0	0	1	01
18	0	0	0	0	0	0	0	1	01	0	0	0	0	0	0	0	1	01
19	0	0	0	0	0	0	1	1	03	0	0	0	0	0	0	1	1	03
20	0	0	0	1	1	1	1	0	1E	0	0	0	1	1	1	1	0	1E
21	0	0	0	0	0	0	1	1	03	0	0	0	0	0	0	1	1	03
22	0	0	0	0	0	1	1	0	06	0	0	0	0	0	1	1	0	06
23	0	0	0	1	0	1	0	0	14	0	0	0	0	1	1	1	0	0E
24	1	0	0	1	0	1	0	1	95	0	1	0	1	1	1	1	1	5F
25	0	0	1	0	0	0	0	0	20	0	0	1	0	0	0	0	0	20
26	0	1	0	0	0	0	0	0	40	0	1	0	0	0	0	0	0	40
27	0	0	0	0	1	0	1	0	0A	0	0	0	0	1	0	1	0	0A
28	0	0	1	0	0	0	0	0	20	0	0	1	0	0	0	0	0	20
29	0	0	1	1	1	1	0	0	3C	1	1	1	1	1	1	1	1	FF
30	1	1	1	1	1	1	1	1	FF	1	1	1	1	1	1	1	1	FF
31	1	1	0	1	1	1	1	1	DF	1	1	0	1	1	1	1	1	DF
32	0	0	0	0	0	1	1	1	07	0	0	0	0	0	1	1	1	07
33	1	0	0	1	0	0	1	0	92	0	0	0	1	0	0	1	0	12
34	0	1	0	1	0	1	0	1	55	0	1	0	1	0	1	0	1	55
35	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
36	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
37	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
38	0	0	0	0	0	0	0	1	01	0	0	0	0	0	0	0	1	01
39	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00
40	0	0	0	0	0	0	0	0	00	0	0	0	0	0	0	0	0	00

47 MODE

## [1] 47 Mode Setting Method

1. 47 mode

This mode provides self-diagnostic functions (input/output check function) to check and adjust the various signals and loads.

Also, 47 mode has a multi-mode, it is possible to check the multiple input/output using one input/output check code.

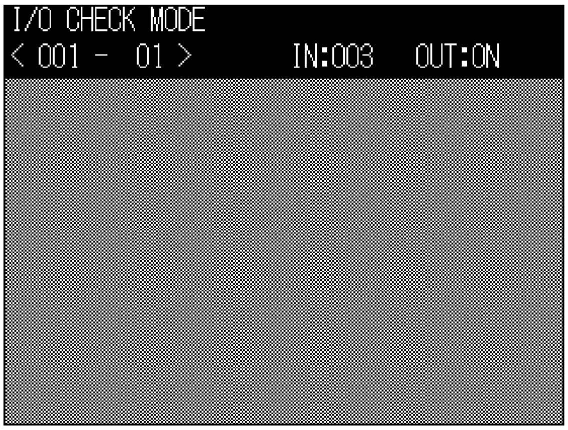
2. Operation method (To start 47 mode)

(1) 47 mode startup

a. Turn OFF the SW2 (sub power) when the SW1 (main power) remains ON.

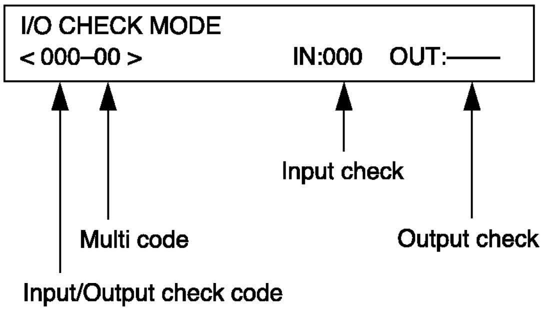
b. Turn the SW2 (sub power) back on while holding down 4 and 7 of the copy quantity setting buttons. 47 mode screen will appear on the LCD screen.
This is the 47 mode which the normal copy operation becomes disable.

[47 mode menu screen]



```
I/O CHECK MODE
< 001 -  01 >        IN:003   OUT:ON
```

[47 mode message display area]



(2) Input check method

a. Using the copy quantity setting button, enter the code input for the desired signal (sensor, etc.) to check.

b. When using the multi mode, press P button and enter the multi code according to the desired input check item (signal) with the copy quantity setting button.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Using the copy quantity setting button, enter the input check code . (*1)
3	When using the multi mode, press the P button.
4	Using the copy quantity setting button, enter the multi code . (*1)
5	Input check result will appear in the input check result display area.
6	To check other signal input check, repeat steps 2 to 5.

*1: Refer to "[7] Input check (code) list".

(3) Output check method

a. Using the copy quantity setting button, enter the output check code for the desired output load to check.

b. When use the multi mode, press P button and enter the multi code according to the desired output check item (load).

c. Press the Start print button to perform the output check.

d. To end the output check, press the Stop/Clear button.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Using the copy quantity setting button, enter the output check code . (*2)
3	When using the multi mode, press the P button.
4	Using the copy quantity setting button, enter the multi code . (*2)
5	Press the Start print button to perform the output check.
6	To end the output check, press the Stop/Clear button.
7	To make another output check, repeat steps 2 to 6.

*2: Refer to "[8] Output check (code) list".

(4) Exiting the 47 mode

To end the 47 mode, turn off the SW2 (sub power).

[2] Initial Setting in the field

Each adjustment data is totally returned to the data value when the machine is delivered from the factory.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “93” by means of the copy quantity setting button. Check that “093-00” appears in the message display area.
△3 3	Press the Start print button. (*1) The message display column [NOW] display changes to [FIN] and resets and ends.
4	To end the setting, press the Stop/Clear button.
5	To end the 47 mode, turn off the SW2 (sub power).

*1: It may be necessary to change the language in both 25 mode and key operator mode after performing the initial setting.

[3] Drum count reset

When replacing the drum, perform this operation to reset the copy count of drum.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “91” by means of the copy quantity setting button. Check that “091-00” appears in the message display area.
3	Press the P button.
4	Press “1” by means of the copy quantity setting button. Check that “091-01” appears in the message display area.
△3 5	Press the Start print button. The message display column [NOW] display changes to [FIN] and resets and ends.
6	To end the operation, press the Stop/Clear button.
7	To end the 47 mode, turn off the SW2 (sub power).

△3 [4] RADF original size detection adjustment

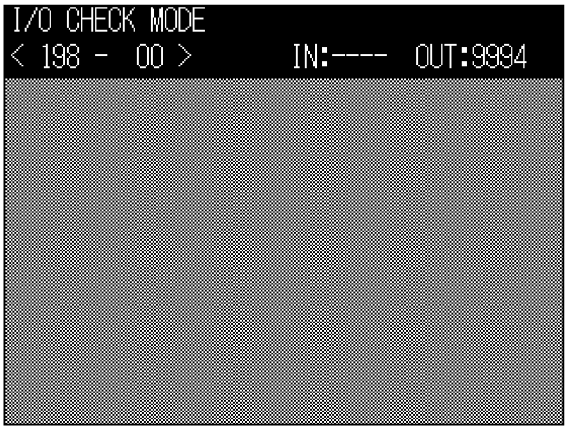
Perform this adjustment when the RADF original size detection does not operate properly or when replacing the DF control board.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “69” by means of the copy quantity setting button. Check that “069-00” appears in the message display area.
3	Set the A5R size original on the RADF, then press the Start print button.
4	Press the Stop/Clear button.
5	Press the P button.
6	Press “1” by means of the copy quantity setting button. Check that “069-01” appears in the message display area.
7	Set the A3 size original on the RADF, then press the Start print button.
8	To end the adjustment, press the Stop/Clear button.
9	To end the 47 mode, turn off the SW2 (sub power).

[5] Electrical RDH memory check

Perform this adjustment when memory is expanded.

[Electrical RDH memory check screen]



```
I/O CHECK MODE
< 198 -  00 >        IN:----   OUT:9994
```

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “198” by means of the copy quantity setting button. Check that “198-00” appears in the message display area.
△3 3	When the START button is pressed, the message display column "OUT:" changes to "NOW" and a memory check is initiated. (approx. 1 min) (*1)
4	The output value according to the expanded memory is displayed in the item of the message display area “OUT: ”. Expansion memory capacity : Output value 0 MB : 9994 16 MB : 9995 32 MB : 9996 48 MB : 9997 64 MB : OK
5	To end the check, press the Stop/Clear button.
6	To end the 47 mode, turn off the SW2 (sub power).

*1: Do not press the Start print button twice or more.

△3 [6] RADF Sensor Adjustment

Perform this adjustment when replacing the DF control board.

Step	Operation procedure
1	Enter the 47 mode.
2	**[47 mode menu screen]** Press “69 P 2” by means of the copy quantity setting button. Check that “069-02” appears in the message display area.
3	Press the Start print button. (*1)
4	To end the setting, press the Stop/Clear button.
5	To end the 47 mode, turn off the SW2 (sub power).

△3 [7] Input check (code) list

Classification	Name	Code	Multi code	Symbol	Display	
					△3 OFF	△3 ON
Analog signal	Drum temperature signal	00			△3 Analog value (0 to 255)	
	Toner control data 0	01		PRDB		
	Toner control data 1	02		PRDB		
	Fixing temperature sensor 0	03		TH1		
	Fixing temperature sensor 1	04		TH2		
	L detection signal	05				
	Humidity sensor signal	06		HUM1		
	By-pass paper size detection signal	07		VR1		
Paper feed	No paper detection signal	10	1: Main body upper tray	PS33	△3 Paper	△3 No paper
			2: Main body lower tray	PS31		
			3: DB1	PS402		
			4: DB2	PS404		
			5: DB3 (only for DB-208 is installed)	PS406		
			6: By-pass	PS13		
	Tray upper limit detection signal	12	1: Main body upper tray	PS34	Upper limit not reached	Upper limit
			2: Main body lower tray	PS32		
			3: DB1	PS403		
			4: DB2	PS405		
			5: DB3 (only for DB-208 is installed)	PS407		
	Paper size signal	16	△3 1: Main body upper tray	SW101, 102, 103, 104	Display of each paper size 2:F4R, 3:B5R, 4:A5, 6:A4R, 7:A5R, 8:A3, 9:B4, 10:B6R, 11: Post card, 13:B5, 15:A4, 17:8.4X14, 21:8.5X11R, 22:5.5X8.5, 23:5.5X8.5R, 24:11X17, 31:8.5X11	
			2: Main body lower tray			
			3: DB1			
			4: DB2 (only for DB-208)	SW401, 402, 403, 404		
			5: DB3 (only for DB-208)			
			△3 6: By-pass feed tray paper size detection PS	PS27	No paper	Paper
	△3 Paper feed door open/close detection signal	17		PS14	Close	Open
Paper feed/ Conveyance	Paper feed sensor signal	20	1: No feed PS	PS17	No paper	Paper
			2: Regist. PS	PS16		
			3: Paper feed detect (DB paper feed door open/close detect)	PS401	No paper (Door is closed)	Paper (Door is opened)
	Paper feed exit sensor signal	22	1: Fixing exit PS	PS29	No paper	Paper
			2: Paper exit PS	PS1		
	Interlock	23	1: Front door	MS1	Close	Open
△3 Optics	Optics sensor signal	40	0: Optics home position PS	PS3	Not in home position	In home position
			1: APS timing PS	PS4	Open	Close
			2: APS sensor 1	PS25	No paper	Paper
			3: APS sensor 2	PS26		

Classification	Name	Code	Multi code	Symbol	Display	
					△3 OFF	△3 ON
Intrinsic function	Toner level detection signal	57		TDL	No toner	Toner
RADF	RADF input	60	00: No original detect PS	PS305	No paper	Paper
			01: RADF open/close detect PS	PS301	Close	Open
			02: Cover open/close detect PS	MS301		
			03: Original regist. PS	PS306	No paper	Paper
			04: Original feed detect PS	PS308		
			05: Original reversal detect PS	PS309		
			06: Original exit detect PS	PS307		
			07: Original size detect PS 1	PS302		
			08: Original size detect PS 2	PS303		
			09: Original size detect VR 1	VR301		
Finisher	Finisher input	70	00: Conveyance drum position detect PS	PS801	OFF	ON
			01: Conveyance drum entrance detect PS	PS802	No paper	Paper
			02: Tray 1 paper exit detect PS	PS803		
			03: Paper through detect PS	PS804		
			04: Tray upper limit detect PS	PS805	Upper limit not reached	Upper limit
			05: Tray lower limit detect PS	PS806	Lower limit not reached	Lower limit
			06: Tray 2 full-stack detect PS	PS807	Full-stack not reached	Full-stack
			08: Tray 3 full-stack detect PS	PS809	Full-stack not reached	Full-stack
			11: Stapler no paper detect PS	PS812	Paper	No paper
			12: Paper exit motor HP PS	PS813	Not in home position	In home position
			13: Stapler unit HP PS	PS814		
			14: Alignment motor HP PS (front)	PS816		
			15: Alignment motor HP PS (rear)	PS815		
			16: Stapler HP PS (front)	PS817	In home position	Not in home position
			17: No staple PS (front)	PS818	Staple	No staple
			18: Staple leading edge detect PS (front)			
			19: Stapler HP PS (rear)	PS820	In home position	Not in home position
			20: No staple PS (rear)	PS821	Staple	No staple
			21: Staple leading edge detect PS (rear)			
			22: Inter lock MS	MS801	Set (ON)	Finisher is released (OFF)
			23: Stapler safety MS	MS804	OFF	ON
ADU/Reversal		80	Reversal detect PS1	PS28	No paper	Paper
		81	Reversal detect PS2	PS30	Paper	No paper
		82	ADU regist. PS	PS502	No paper	Paper
		83	ADU set detect PS		ADU is released	ADU is set

△3 [8] Output check (code) list

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
Analog signal	Exposure lamp	00		L1	
	Toner supply motor 1	01		M3, M11	
	Charging	02	Output the code specified value as reading.	HV1	X
	Transfer	03		HV2	X
	Separation (AC)	04		HV2	X
	Transfer + separation (AC+DC)	05		HV2	X
	Separation (DC)	06		HV2	X
	Grid	07		HV1	Adjust by the 36 mode.
	Dmax/ γ LED	08			Adjust by the 36 mode.
	Guide plate	10		HV2	X
	Bias	11		HV2	X
	Service counter clear	15	1: Service counter clear		
			98: KRDS initializing		
	Dmax level auto adjustment	18			Adjust by the 36 mode.
	PWM γ correction	19			Adjust by the 36 mode.
Paper feed	1st paper feed SD	20	1: Main body upper tray	SD3	
			2: Main body lower tray	SD2	
			3: By-pass	SD4	
			4: DB1	SD401	
			5: DB2	SD402	
			6: DB3	SD403	
	1st paper feed motor	21	1: Main body 210 mm/sec.	M6	
			2: Main body 179 mm/sec.		
			3: Main body 630 mm/sec.		
			5: DB low speed 210 mm/sec.	M401	
			6: DB high speed 570 mm/sec.		
	Tray motor	23	1: Main body upper tray	M9	
			2: Main body lower tray	M8	
			3: DB1	M402	
			4: DB2	M403	
			5: DB3	M404	
	Registration clutch	25		MC1	
	By-pass tray paper size detect VR	28		VR1	X
	Separation claw SD	29		SD1	
Optics	Scanner drive motor	31		M2	
	Polygon motor	32	1: 400 dpi	M5	
			2: 600 dpi		
			3: Wait		
	Laser PWM	36	Output the code specified value as reading.		

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
Main body	Conveyance motor	40	1: 400 dpi	M1	
			2: 600 dpi		
	Drum motor	41	1: 400 dpi	M4	
			2: 600 dpi		
	Fan motor	42	1: Main body cooling fan (low speed)	FM3	
			2: Main body cooling fan (high speed)		
			3: Conveyance suction fan (low speed)	FM4	
			4: Conveyance suction fan (high speed)		
			5: DCPS cooling fan	FM5	
			6: Scanner cooling fan 1, 2	FM1,FM2	
	Total counter	43		C(T)	
	Fixing heater lamp	45	1: Main heater	L2	
			2: Sub heater	L3	
△3	All operation unit LEDs lit.	48			
Intrinsic function	Developing drive motor	50		M3,MC2	
	PCL	51		PCL	
	TSL	52		TSL	
	Agitation motor	53		M3	
	Toner auto supply	54		M11	Adjust by the 36 mode.
	Toner supply motor	55		M11	
	Developing MC	56		MC2	
	Toner level detect power source	57		TLD	
	Toner cartridge	58		M10	
	24 V power source remote	59	1: for scanner	DCPS1	
			2: for printer		
RADF	Load output	60	0: Original feed motor (forward rotation)	M302	
			1: Original feed motor (reverse rotation)		
			2: Original conveyance motor (forward rotation)	M301	
			3: Original conveyance motor (reverse rotation)		
			4: Original pick-up CL	CL301	
			5: Original feed CL	CL302	
			6: Flapper SD	SD301	
			7: Original pressure SD	SD302	

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
RADF	Vertical magnification data setting (50%)	61	Replace the input multi code value with the setting value.		Adjust by the 36 mode.
	Vertical magnification data setting (100%)	62			
	Vertical magnification data setting (200%)	63			
	Vertical magnification data setting (400%)	64			
	Registration data setting (front side)	65			
	Loop data setting (forward feed)	66			
	Loop data setting (reverse feed)	67			
	Registration data setting (back side)	68			
△3	Others	69	0: Original size adjustment (small size)	VR301	Adjust by the 47 mode.
			1: Original size adjustment (large size)	VR301	
			2: Sensor adjustment	PS306 PS308 PS309	
Finisher	Each load of FNS	70	01: Drum position initialize	M807	
			02: Drum operation only		
			05: Conveyance operation only	M801	
			10: Rear side stapler M stapling	M803	
			13: Front side stapler M stapling	M802	
			15: Stapler movement M initialize	M806	
			16: Stapler movement M move to size position (A4 size position)		
			20: Paper exit M operation	M805	
			25: Rear side alignment M initialize	M808	
			26: Rear side alignment M move to alignment position (A4 size position)		
			27: Rear side alignment M open/close operation		
			30: Front side alignment M initialize	M809	
			31: Front side alignment M move to alignment position (A4 size position)		
			32: Front side alignment M open/close operation		
			35: Tray move down	M804	
			36: Tray move upward		
			40: Gate switching ON: Tray 1 OFF: Tray 2, 3	SD801	
			45: Tray 2 spinose roller operation	M810	
			46: Tray 3 spinose roller operation	M811	
			50: Shutter SD	SD802	

Classification	Name	Code	Multi code	Symbol	Inhabit to set/change to write in the filed
ADU	ADU paper feed motor	80	1: Low speed	M501	
			2: High speed		
	Reversal paper exit motor	81	1: 210 mm/sec (forward rotation)	M12	
			2: 630 mm/sec (forward rotation)		
			3: 350 mm/sec (reverse rotation)		
			4: 630 mm/sec (reverse rotation)		
			5: 210 mm/sec (reverse rotation)		
			6: 350 mm/sec (forward rotation)		
			7: 179 mm/sec (reverse rotation)		
			8: 179 mm/sec (forward rotation)		
△3	ADU clutch	82	1: Restart MC	MC501	
			2: Loop MC (210 mm/sec)	MC502	
			3: Loop MC (630 mm/sec)		
			4: ADU paper feed CL	MC503	
	Gate SD	83		SD5	
Others	PM counter clear	90			
	Counter clear	91	1: Drum counter clear		
	Process initial setting	92			×
	Field initial setting (Reset to factory setting data)	93			
△3	Adjustment mode list display mode	94			*Only checking
	L detection reference value automatic adjustment (developing counter reset)	95			Adjust by the 36 mode.
	Process delivery completing setting	96			×
	Lighting adjustment	97			
△3	Message test	101			
△3	Printer related non-volatile data reset.	120			During Printer board replacement. Defective at time of installation.
Special mode	Electrical RDH memory capacity check	197			
	Electrical RDH memory check	198			

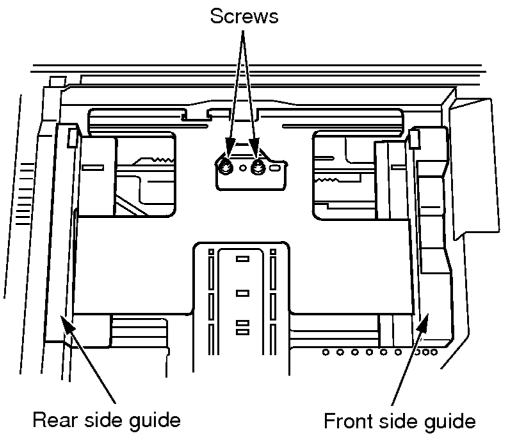
OTHER ADJUSTMENTS

[1] Centering Adjustment

1. Tools required

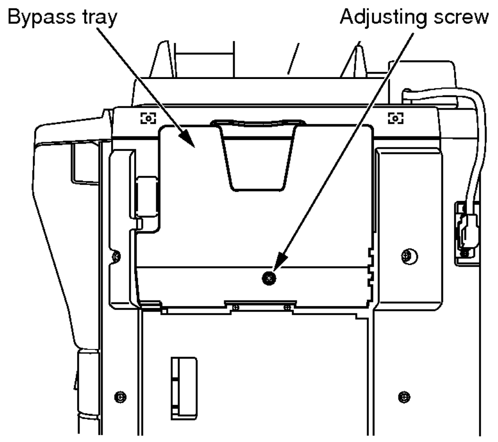
- Screwdriver, (Phillips, standard)
- Pyramid chart (A3)

2. Universal tray certering



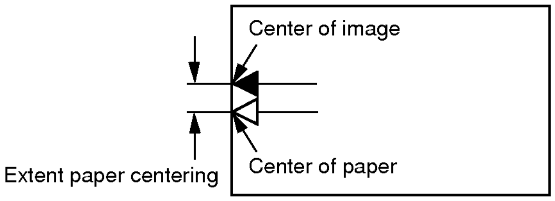
Step	Operation procedure
1	Make a copy and measure the extent of paper centering.
2	Slide out the universal tray towards you.
3	Loosen the two screws in the center of the tray.
4	Adjust the paper centering by moving the front and rear side guides back and forth.
5	After adjustment is complete, tighten the two screws and slide the universal tray back in place.
6	Make another copy and measure the extent of paper centering.
7	Repeat steps 2 to 6 until the extent of paper centering falls within the specified range.

3. Bypass tray centering

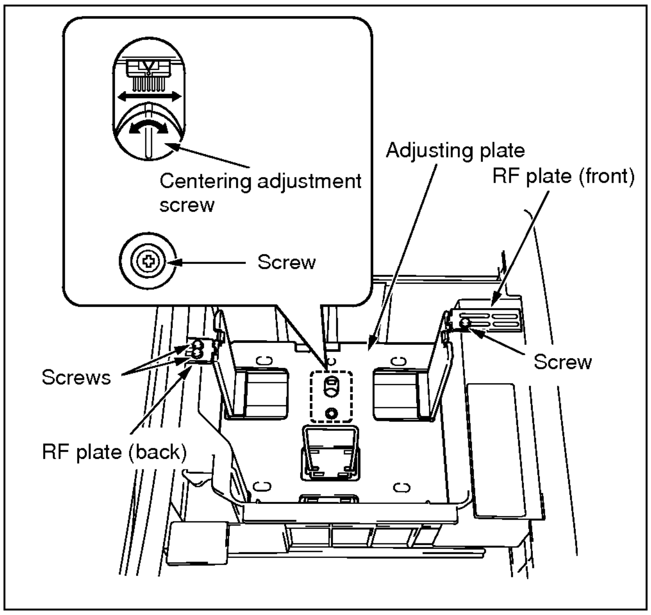


Step	Operation procedure
1	Make a copy and measure the extent of paper centering.
2	Loosen the adjustment screw and lower the bypass tray towards you.
3	Adjust the paper centering by moving the guide back and forth.
4	After adjustment is complete, tighten the adjusting screw, make another copy, and measure the extent of paper centering.
5	Repeat steps 2 to 4 until the extent of paper centering falls within the specified range.

Specified range : Extent of paper centering
Within ± 2 mm (Main body)
Within ± 3 mm (Full system)

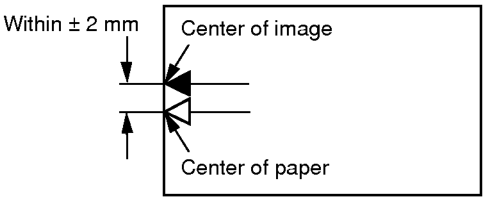


4. LCT tray centering


Centering adjustment screw
Screw
Adjusting plate
RF plate (front)
Screws
Screw
RF plate (back)

Step	Operation procedure
1	Pull out the LCT tray.
2	Loosen the screw on the front RF plate and two screws on the rear RF plate.
3	Push the adjusting plate in and loosen the screw.
4	With the adjusting plate pressed down, move the centering adjustment screw with the standard screwdriver, retighten the screws then adjust the paper centering.
5	After adjustment is complete, be sure to tighten the screw on the front RF plate and two screws on the rear RF plate.
6	Repeat steps 1 to 5 until the extent of paper centering falls within the specified range.

Specified range : Extent of paper centering
Within ± 2 mm

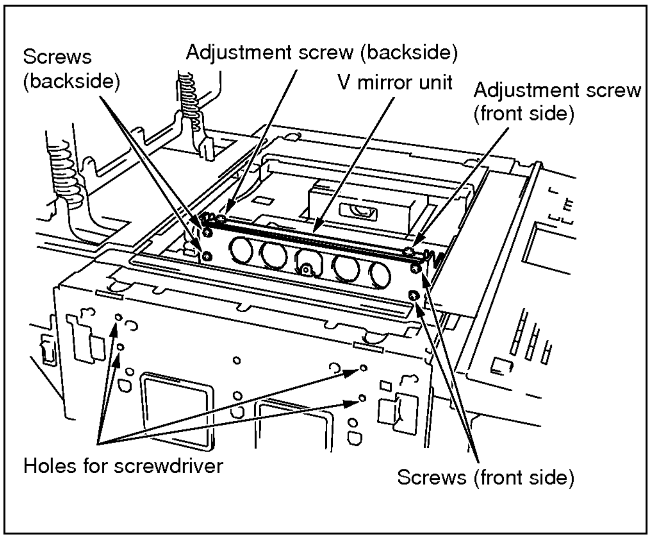

Within ± 2 mm
Center of image
Center of paper

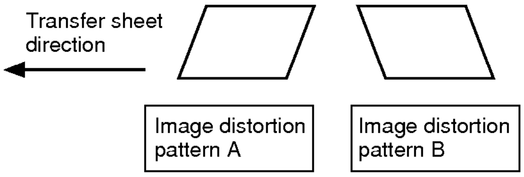
[2] Image Distortion Adjustment

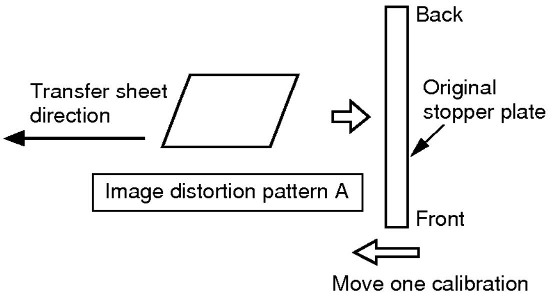
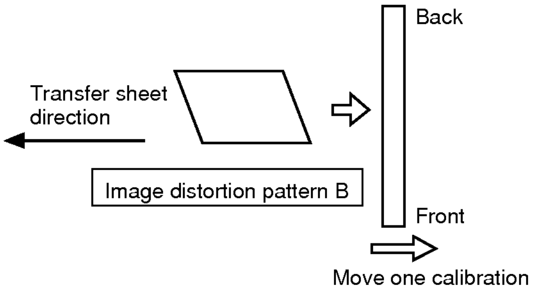
1. Tools required

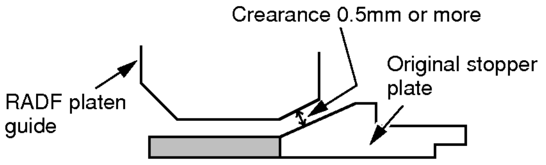
- Screwdriver (Phillips)
- Pyramid chart (A3)

2. Adjustment Method


Screws (backside)
Adjustment screw (backside)
V mirror unit
Adjustment screw (front side)
Holes for screwdriver
Screws (front side)

Step	Operation procedure
1	Measure the degree of image distortion in both Platen mode and ADF mode. **Note:** Measure the diagonal of the original being used beforehand.
2	Check the image distortion pattern. (either pattern A or B)  Transfer sheet direction Image distortion pattern A Image distortion pattern B
3	If the Platen modes is within specified range (less than 0.3%) go to procedure 8. If not within specified range, go to procedure 4.
4	Turn the power switch OFF. **Note:** Always turn the power switch OFF other than during image output.
5	Remove the Left side cover, Read cover (right), Read cover (left), Original stopper plate, Original glass and Original glass (1).
6	Move the V mirror unit to the left side.

Step	Operation procedure
7	Adjust the image distortion. **Note:** When turning the screw on the left side of the V mirror unit, pass the driver through the holes for screwdriver on the left side of the main body. **<For image distortion pattern A>** A. Loosen the two screws on the front side of the V mirror unit left side. B. After turning the adjustment screw on the front side of the upper surface of the V mirror unit 1/2 turns clockwise, tighten the two screws located on the front side of the left surface. C. Repeat steps A to B until the image distortion is within specified range (0.3% or less). **<For image distortion pattern B>** A. Loosen the two screws on the backside of the V mirror unit left side. B. After turning the adjustment screw on the backside of the upper surface of the V mirror unit 1/2 turns clockwise, tighten the two screws located on the backside of the left surface. C. Repeat steps A to B until the image distortion is within specified range (0.3% or less).
8	Move the original adjustment plate / front (55GA6134) for the original stopper plate, one calibration (0.5mm) according to the image distortion pattern.  Back Transfer sheet direction Original stopper plate Image distortion pattern A Front Move one calibration  Back Transfer sheet direction Image distortion pattern B Front Move one calibration

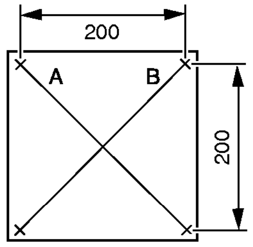
Step	Operation procedure
9	Attach the RADF position adjusting jig to the original stopper plate attachment unit.
10	Loosen the ADF hinge screw and readjust the RADF position according to the RADF position adjusting jig.
11	Remove the RADF position adjusting jig.
12	Repeat steps 8 to 12 until the image distortion is within specified range (less than 0.3%).
13	Check that the paper skew for the platen mode is within specified range (less than 0.5%). If not within specified range, move the original adjustment plate / front to adjust the original stopper plate. **Note:** Do not move the position of ADF.
14	If the original stopper plate has been adjusted in step 13, check to see that the clearance between the original stopper plate and the RADF platen guide is more than 0.5mm. If less than 0.5mm, repeat steps 8 to 14.  Crearance 0.5mm or more Original stopper plate RADF platen guide

Specified range:

Life size magnification: within 0.3 %

Variable magnification: within 0.5 %

for diagonal line of a square 200 mm (A, B) the difference is within 0.5 %



| A — B | < 1.4 mm

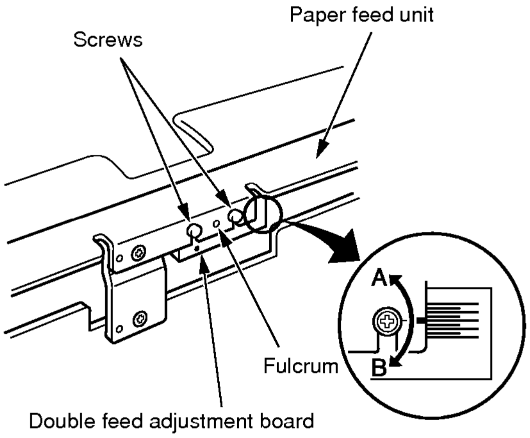
[3] Paper Skew Adjustment

1. Tools required

- Screwdriver (Phillips)
- Six angled wrench
- Pyramid chart (A3)

2. Main body paper skew adjustment

Note: Adjust the paper skew on every tray in the paper feed unit.



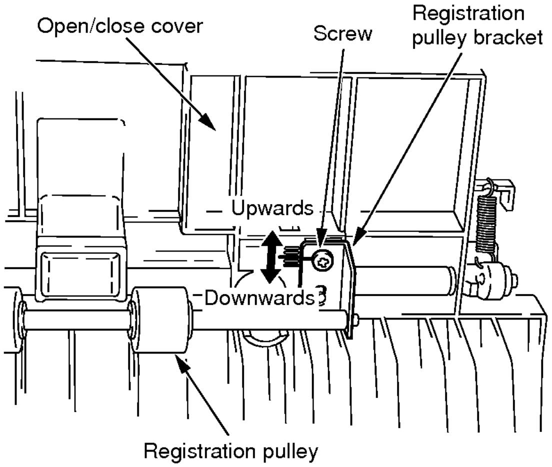
Step	Operation procedure
1	Make a copy and measure the paper skew.
2	Loosen the two screws on the paper feed unit.
3	Rotate and adjust the double feed adjustment board in the paper feed direction. • For fast copies from the front: Rotate in A direction • For fast copies from the rear: Rotate in B direction.
4	Loosen the screws and make a second copy, adjusting the paper skew.
5	Repeat steps 2 to 4 until the paper skew is within the specified range below.

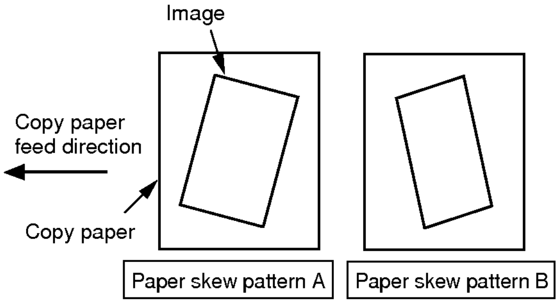
Specified range: Paper skew ± 0.8 % (Main body)
± 1.3 % (System)

(Paper skew in the paper feed direction)

3. RADF paper skew adjustment

■ Face side of original paper skew adjustment

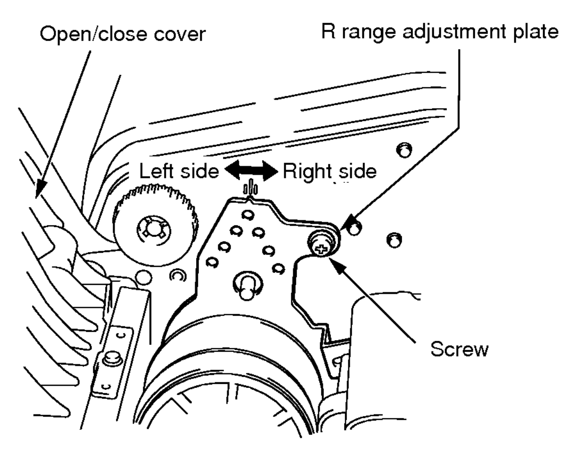


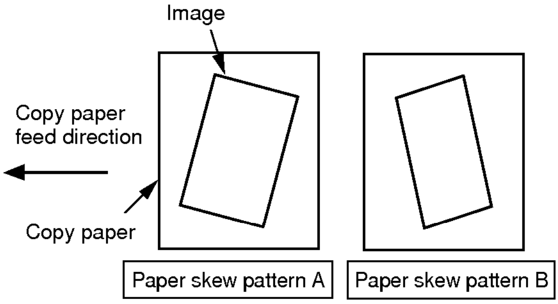
Step	Operation procedure
1	Make a copy in the single sided → single sided copy mode then check the skew of the original. (Either pattern A or B)  Image Copy paper feed direction Copy paper Paper skew pattern A Paper skew pattern B
2	Open the open/close cover.
3	Loosen the set screw and release the registration pulley bracket.
4	Move the registration pulley bracket one calibration in the direction below according to the paper skew pattern. For skew in pattern A: Move the registration pulley bracket downwards (direction down with original feed flow). For skew in pattern B: Move the registration pulley bracket upwards (direction up towards original feed flow). **Note:** Make sure that the registration pulley shaft does not touch the open/close cover spring holder unit.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5 % or less

(Paper skew in the paper feed direction)

■ Back side of original paper skew adjustment


Open/close cover
R range adjustment plate
Left side
Right side
Screw

Step	Operation procedure
1	Make a copy in the double sided → single sided copy mode then check the skew of the original. (Either pattern A or B)  Image Copy paper feed direction Copy paper Paper skew pattern A Paper skew pattern B
2	Open the open/close cover.
3	Loosen the set screw and release the R range adjustment plate.
4	Move the R range adjustment plate one calibration in the direction below according to the paper skew pattern. For skew in pattern A: Move the R range adjustment plate to the left side. For skew in pattern B: Move the R range adjustment plate to the right side.
5	Repeat steps 2 to 4 until the original skew is within specified range (0.5% or less).

Specified range: Paper skew ± 0.5% or less

(Paper skew in the paper feed direction)

6

SERVICE

6. SERVICE

SERVICE SCHEDULE 6-1

[1] Service Schedule 6-1

[2] Maintenance Items 6-2

[3] Periodic Check (Main Body) 6-6

[4] RADF [DF-311] Periodic Check 6-7

[5] DB [DB-608] Periodic Check 6-7

[6] DB [DB-208] Periodic Check 6-7

△3 [7] DB [DB-208A] Periodic Check 6-7

[8] FNS [FS-105] Periodic Check 6-7

[9] Actual Count Replacement Parts 6-8

COPY MATERIALS 6-10

[1] PM Parts Kit Composition 6-10

SERVICE MATERIALS LIST 6-12

SPECIAL TOOLS LIST 6-13

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
   Before starting maintenance, speak to the user and collect information about troubles that have occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.

2. Copy sample
   Be sure to make samples at the start and at the end of maintenance for checking images.

3. Drum
   1) Never expose a drum to the sunlight. Also be careful not to expose a drum to indoor light as much as possible.
      When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
   2) When replacing a drum or a cleaning blade, refer to Item of mounting/dismounting of a cleaning blade for doing a replacement work.

4. After replacing a drum, be sure to reset the drum counter before image adjustment. After replacing developer, L detection adjustment must be conducted.

5. When maintenance is completed, be sure to reset the PM counter. Incidentally, a development counter is reset automatically in the course of L detection adjustment.

6. When replacing a toner cartridge, wait until a toner supply LED on an operation panel flashes before the replacement.

⚠

Note: Turn the main power switch off and pull out the power plug without fail before the work of maintenance.

SERVICE SCHEDULE

[1] Service Schedule

Classification	Number of copies (unit: 10,000) / Service item (cycles)	Guarantee period (5 years or 1,200,000 copies)										Service times
		10	20	30	40	50	60		90	100	110	
Main body	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (I) (Every 200,000 copies or prints)		●		●		●	●		●		5 times
	Periodic check (II) (Every 400,000 copies or prints)				●			●				2 times
	Periodic check (III) (Every 800,000 copies or prints)							●				1 time
RADF (DF-311)	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (Every 200,000 copies or prints)		●		●		●	●		●		5 times
DB-608 (1 tray + LCT)	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (Every 200,000 copies or prints)		●		●		●	●		●		5 times
DB-208 (3 trays)	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (Every 300,000 copies or prints)			●			●	●	●			3 times
△3 DB-208A (1 tray)	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (Every 300,000 copies or prints)			●			●	●	●			3 times
FNS (FS-105)	Maintenance (Every 100,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	11 times
	Periodic check (Every 300,000 copies or prints)			●			●	●	●			3 times

[2] Maintenance Items

1. Main body (Every 100,000 copies, prints or paper feed)

Remarks: (●) and (◎) indicate the following in the classification of implementation.
(●) indicates items that must always be implemented.
(◎) indicates items for checking whether they have reached the substantial resistance count listed in the fixed replacement part list and judge whether to replace them or not.

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Preparation	(1) Image check		●				
		(2) External parts		●				
	△3	(3) 47 mode 94 (Check of adjustment value, Dmax and γ correction error)		●				
2	Fixing unit	(1) Fixing unit removing						
		(2) Upper cover removing						
3	Drum unit	(1) Drum unit removing						
		(2) Drum unit check		●				
		(3) Charging corona unit removing						
		(4) Charging control plate 55GA2507*				◎		
		(5) Charging wire 55FA2501*				◎		
		(6) Charging corona unit cleaning (Back plate and its around, and PCL)	●					Drum cleaner & Waste rag Blower brush
		(7) Cleaner mount assembly 55GA-252*				◎		
		(8) Charging wire cleaning block (C) 55GA-253*				◎		
		(9) Charging wire cleaning block (D) 55GA-255*				◎		
		(10) Developing unit removing						
		(11) Drum removing						
		(12) Drum cartridge/Developing unit bottom plate/Toner control sensor/Separating claw/Developing bias intercept	●					Blower brush & Cleaning pad Drum cleaner (Drum cleaner: only when using the toner control sensor cleaning.)
		(13) Cleaning blade 55GA5601*				◎		
		(14) Drum installing						
		(15) Charging corona unit installing						
4	Developing unit	(1) Developing unit lower rib (inside & outside)/upper rib (back side of the urethane sheet)	●					Waste rag & Blower brush (When cleaning the back side of the urethane sheet, the back side should be cleaned, particularly the urethane sheet section.)
		(2) Developing unit installation						
		(3) Toner supply opening and its around	●					Waste rag
5	Transfer/ Separator corona unit	(1) Transfer/Separating corona unit cleaning (Front and rear block/Guide rail/Separating bridge/Entrance guide plate/Back plate) and include removing and installing	●					Blower brush & Cleaning pad
		(2) Discharging wire 55GA2607*				◎		

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean- ing	Check	Lubri- cation	Replace- ment	Supply	
6	Machine inside	(1) Conveyance unit	●					Drum cleaner & Cleaning pad
		(2) Conveyance guide plate	●					Drum cleaner & Cleaning pad
		(3) Conveyance belt	●					Drum cleaner & Cleaning pad
		(4) Toner filter 55GA7326*				◎		
7	2nd paper feed unit	(1) Transfer entrance guide plate assembly	●					Drum cleaner & Cleaning pad
		(2) Registration guide plate (B) assembly	●					Drum cleaner & Cleaning pad
		(3) Registration unit	●					Drum cleaner & Cleaning pad
		(4) Registration roller (lower)	●					Drum cleaner & Cleaning pad
		(5) Registration roller (upper)	●					Drum cleaner & Cleaning pad
		(6) Registration paper feed roller	●					Drum cleaner & Cleaning pad
		(7) Paper feed pulley	●					Drum cleaner & Cleaning pad
		(8) Paper conveyance roller	●					Drum cleaner & Cleaning pad
		(9) Photo sensors	●					Blower brush
		(10) Paper feed door	●					Drum cleaner & Cleaning pad
8	Drum unit	(1) Drum unit installing						
9	By-pass unit	(1) By-pass tray	●					Drum cleaner & Cleaning pad
		(2) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention plate	●					Drum cleaner & Cleaning pad
		(5) Photo sensor	●					Blower brush
		(6) Photo sensor	●					Blower brush
10	Paper feed unit	(1) Paper feed unit removing						
		(2) Paper feed roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
11	ADU	(1) Registration roller (lower)	●					Drum cleaner & Cleaning pad
		(2) Conveyance roller (A)	●					Drum cleaner & Cleaning pad
		(3) Conveyance roller (B)	●					Drum cleaner & Cleaning pad
		(4) Photo sensor	●					Blower brush
		(5) Photo sensor	●					Blower brush
12	Reversal paper exit section	(1) Paper exit turn back roller	●					Drum cleaner & Cleaning pad
		(2) Turn back roller	●					Drum cleaner & Cleaning pad
		(3) Conveyance roller	●					Drum cleaner & Cleaning pad
		(4) Paper exit roller	●					Drum cleaner & Cleaning pad
		(5) Photo sensors	●					Blower brush
13	Reading section	(1) Original glass	●					Drum cleaner & Cleaning pad
		(2) Lens	●					Blower brush
		(3) 1st mirror	●					Blower brush & Cleaning pad
		(4) 2nd mirror	●					Blower brush & Cleaning pad
		(5) White reference plate cover glass	●					Drum cleaner & Cleaning pad
		(6) Original glass (1)	●					Drum cleaner & Cleaning pad
		(7) Optics drive wire (front)		●				
		(8) Optics drive wire (rear)		●				
		(9) Optics driven sheet			●			Multi oil & Cotton tips
		(10) Optics driven sheet (upper)			●			Multi oil & Cotton tips
		(11) APS sensors	●					Blower brush
		(12) Photo sensors	●					Blower brush
		(13) Lamp power supply relay cord		●				

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
14	Fixing unit	(1) Fixing cleaning roller 55GA5312*				◎		
		(2) Fixing roller (A) 55GA5311*				◎		
		(3) Fixing cleaning pad 55GA5310*				◎		
		(4) Fixing roller (upper)	●					Roller cleaner & Cleaning pad
		(5) Paper exit guide (lower) removing						
		(6) Fixing roller (lower)	●					Roller cleaner & Cleaning pad
		(7) Fixing claw (upper)	●					Roller cleaner & Cleaning pad
		(8) Fixing claw (lower)	●					Roller cleaner & Cleaning pad
		(9) Fixing paper exit roller (lower)	●					Drum cleaner & Cleaning pad
		(10) Paper exit pulley	●					Drum cleaner & Cleaning pad
		(11) Fixing entrance plate (lower)	●					Roller cleaner & Cleaning pad
		(12) Fixing entrance plate (upper)	●					Roller cleaner & Cleaning pad
		(13) Fixing temperature sensor 2	●					Roller cleaner & Cleaning pad
		(14) Paper exit guide (lower) installing						
		(15) Fixing upper cover installing						
		(16) Fixing unit installing						
		(17) Photo sensor	●					Blower brush
15	Final check	(1) Toner cartridge supply		●			●	
		(2) W.U.T measure and check		●				
		(3) Image check after changing consumables (Necessary operation when replacing the 160,000 copy materials).		●				
		(4) Copy sample check		●				
		(5) PM counter reset		●				
		(6) Leakage breaker reset		●				
		(7) Machine surroundings, Externals	●	●				Implementation classification

2. RADF [DF-311] (Every 100,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Machine inside	(1) Registration sensor mirror	●					Blower brush
		(2) Registration sensor	●					Blower brush
		(3) Read sensor reflection element	●					Blower brush
		(4) Read sensor	●					Blower brush
		(5) Switchback sensor mirror	●					Blower brush
		(6) Switchback sensor	●					Blower brush

DB-208: Operational manhours of 1 unit X 3
DB-208A: Operational manhours of 1 unit X 1
DB-608: Operational manhours of 1 unit X 2

△3 3. DB [DB-208/DB-208A/DB608] (Every 100,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Externals	(1) Externals		●				
2	Paper feed section	(1) Paper feed unit removing						
		(2) Paper feed roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
3	Externals	(1) Externals	●	●				Drum cleaner & Cleaning pad

4. FNS [FS-105] (Every 100,000 paper exit)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Conveyance section	(1) Conveyance drive roller (A) 120H4210*	●					Drum cleaner & Cleaning pad
		(2) Paper exit drive roller 120H4211*	●					Drum cleaner & Cleaning pad

[3] Periodic Check (Main Body)

1. Periodic check (I) (Every 200,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Fixing unit	(1) Fixing claw (upper) 25SA5315*				◎		
		(2) Heat insulating sleeve 45405339*				◎		
		(3) Fixing roller (upper) 55GA5303*				◎		
2	Drum unit	(1) Drum				◎		Setting powder
		(2) Separation claw 55GA-206*				◎		
		(3) Drum counter reset		●				
3	Developing unit	(1) Developer (include the developing unit installing)				◎		
		(2) L detection adjustment		●				
4	Paper feed unit	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

2. Periodic check (II) (Every 400,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	By-pass (paper feed section)	(1) Double feed prevention roller 54004056*				◎		
		(2) Separation roller 54004056*				◎		
		(3) Paper feed roller 25BA4032*				◎		
2	Fixing unit	(1) Fixing claw (lower) 54005310*				◎		
		(2) Fixing roller (lower) 55GA5304*				◎		
		(3) Fixing bearing (upper) 55GA7502*				◎		
		(4) Bearing 55GA7503*				◎		
		(5) Fixing bearing 55GA7504*				◎		

3. Periodic check (III) (Every 800,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Fixing unit	(1) Fixing heater lamp 1 55GA8302*				◎		
		(2) Fixing heater lamp 2 55GA8303*				◎		

[4] RADF [DF-311] Periodic Check

1. Periodic check (I) (Every 200,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed section	(1) Paper feed roller 120A4582*				◎		
		(2) Separation roller 120A4582*				◎		
		(3) Separation pad 120A-458*				◎		

[5] DB [DB-608] Periodic Check

1. Periodic check (I) (Every 200,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed section (two units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

[6] DB [DB-208] Periodic Check

1. Periodic check (I) (Every 300,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed section (three units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

△3 [7] DB [DB-208A] Periodic Check

1. Periodic check (I) (Every 300,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper feed section (one unit)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

△3 [8] FNS [FS-105] Periodic Check

1. Periodic check (I) (Every 300,000 paper exit)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Paper exit section	(1) Paper exit roller (A) (Tray 2) 122H4825*				◎		
		(2) Paper exit roller (A) (Tray 3) 122H4825*				◎		

△3 [9] Actual Count Replacement Parts

Classification	Parts name	Part number	Actual count
Drum cartridge (include charging corona unit)	Cleaning blade	55GA5601*	100,000
	Charging wire	55FA2501*	100,000
	Charging control plate	55GA2507*	100,000
	Cleaner mount assembly	55GA-252*	100,000
	Charging wire cleaning block (C)	55GA-253*	100,000
	Charging wire cleaning block (D)	55GA-255*	100,000
	Transfer/Separation charging wire	55GA2607*	100,000
	OPC drum	–	200,000
	Separation claw	55GA-206*	200,000
Developing unit	Developer	–	200,000
Paper feed unit	(Tray: 1) Separation rubber	54004056*	100,000
	(Tray: 1) Paper feed rubber	25BA4032*	100,000
	(Tray: 1) Double feed prevention rubber	54004056*	100,000
	(Tray: 2) Separation rubber	54004056*	100,000
	(Tray: 2) Paper feed rubber	25BA4032*	100,000
	(Tray: 2) Double feed prevention rubber	54004056*	100,000
	(Tray: 3) Separation rubber	54004056*	100,000
	(Tray: 3) Paper feed rubber	25BA4032*	100,000
	(Tray: 3) Double feed prevention rubber	54004056*	100,000
	(Tray: 4) Separation rubber	54004056*	100,000
	(Tray: 4) Paper feed rubber	25BA4032*	100,000
	(Tray: 4) Double feed prevention rubber	54004056*	100,000
By-pass paper feed unit	(By-pass) Separation rubber	54004056*	100,000
	(By-pass) Paper feed rubber	25BA4032*	100,000
	(By-pass) Double feed prevention rubber	54004056*	100,000
Fixing unit	Fixing cleaning roller	55GA5312*	100,000
	Fixing roller (A)	55GA5311*	100,000
	Fixing cleaning pad	55GA5350*	100,000
	Fixing roller (upper)	55GA5303*	200,000
	Fixing claw (upper)	25SA5315*	200,000
	Heat insulating sleeve	45405339*	200,000
	Fixing roller (lower)	55GA5304*	400,000
	Fixing claw (lower)	54005310*	400,000
	Fixing bearing (upper)	55GA7502*	400,000
	Bearing	55GA7503*	400,000
	Fixing bearing	55GA7504*	400,000
	Fixing heater lamp 1	55GA8302*	800,000
	Fixing heater lamp 2	55GA8303*	800,000

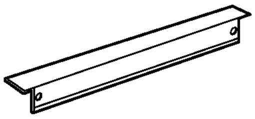
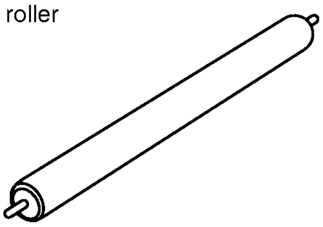
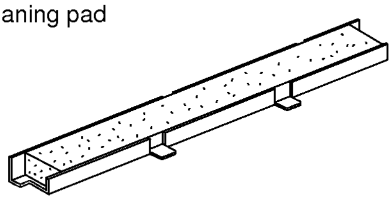
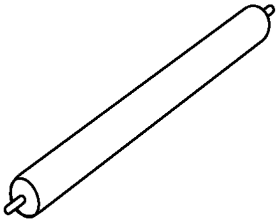
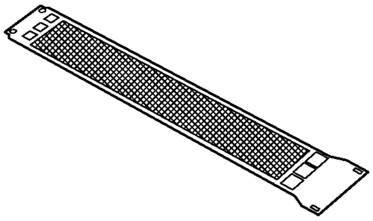
Classification	Parts name	Part number	Actual count
Machine inside	Toner filter	55GA7326*	100,000
DF-311	Paper feed roller	120A4582*	90,000
	Forwarding roller	120A4582*	90,000
	Separation pad	120A-458*	90,000
FS-105	(Tray 2) Paper exit roller (A)	122H4825*	200,000
	(Tray 3) Paper exit roller (A)	122H4825*	200,000
	* Staple unit (front)	120H5040*	500,000
	* Staple unit (rear)	120H5040*	500,000

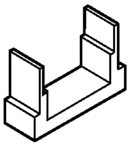
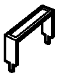
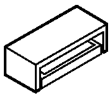
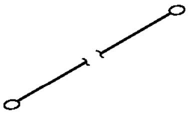
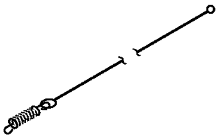
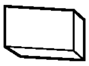
* Regarding usage frequency, 1 staple of the 3-sheets sort is the condition for assuming a main body count 1.5 million resistance when using the system.

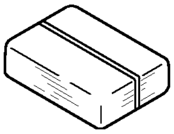
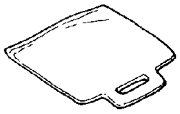
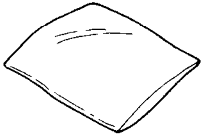
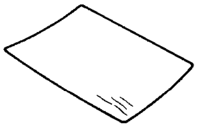
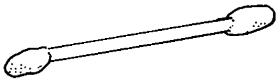
COPY MATERIALS

[1] PM Parts Kit Composition

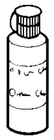
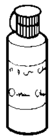
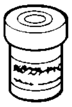
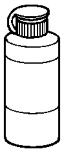
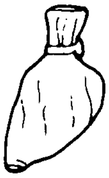
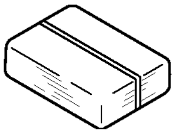
1. Composition (100,000 copies/kit)

Name	Quantity
Cleaning blade 	1
Fixing cleaning roller 	1
Fixing cleaning pad 	1
Fixing roller (A) 	1
Charging control plate 	1

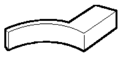
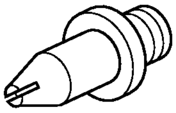
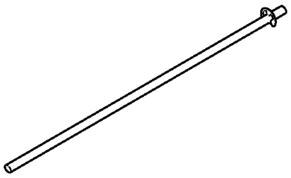
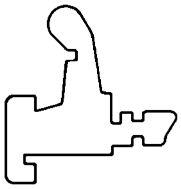
Name	Quantity
Cleaner mount assembly 	1
Charging wire cleaning block (C) 	1
Charging wire cleaning block (D) 	1
Charging corona wire 	1
Charging wire (Transfer/Separation corona) 	2
Toner filter 	1

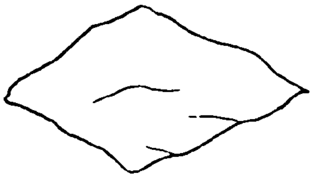
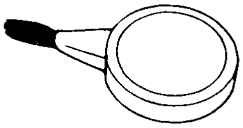
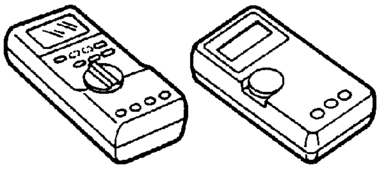
Name	Quantity
Cleaning pad (10 sheets) 	3
Vanity bag for collection 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Cotton tips (4 pcs.) 	1

SERVICE MATERIALS LIST

Material No.	Description	Shape	Remark
000V-16-0	Drum cleaner	 200 ml	
000V-17-0	Roller cleaner	 200 ml	
00GR00020	Plus guard No. 2	 25 g	
00GR00170	Multi-oil	 200 ml	
000V-19-0	Setting powder	 25 g	
000V-18-1	Cleaning pad	 10 pcs 1 pack	

△3 SPECIAL TOOLS LIST

Tool No.	Description	Shape	Quantity	Remark
55GAJG010	Temperature sensor position adjusting jig (for fixing)		1	
120A10520	RADF position adjusting jig (for DF-311)		1 set	2 pieces/set
7050K0020	Optics position adjusting jig		2	
00M6-2-00	Door switch jig		1	
00VD-5000	New pyramid chart		1	
120A97110	ADF adjusting chart		1	

Tool No.	Description	Shape	Quantity	Remark
120A97120	White chart		1	
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1002 or 00VE-1003	Tester	 (00VE-1002) (00VE-1003)	1	

* The 55GA2025* drum support tool is screwed to the inside of the main body (front panel/left).

Application: Makes it possible to rotate the drum with the drum cartridge removed from the main body.

Konica

ISW

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to the 7040 service handbook on page C-1

1. GENERAL

2. OPERATION

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

1

GENERAL

1. GENERAL

GENERAL DESCRIPTION OF ISW 1-1
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  [1] PC Software for ISW 1-2
  [2] ISW Tool 1-3
  [3] Names of Individuals Sections of the ISW Tool 1-4
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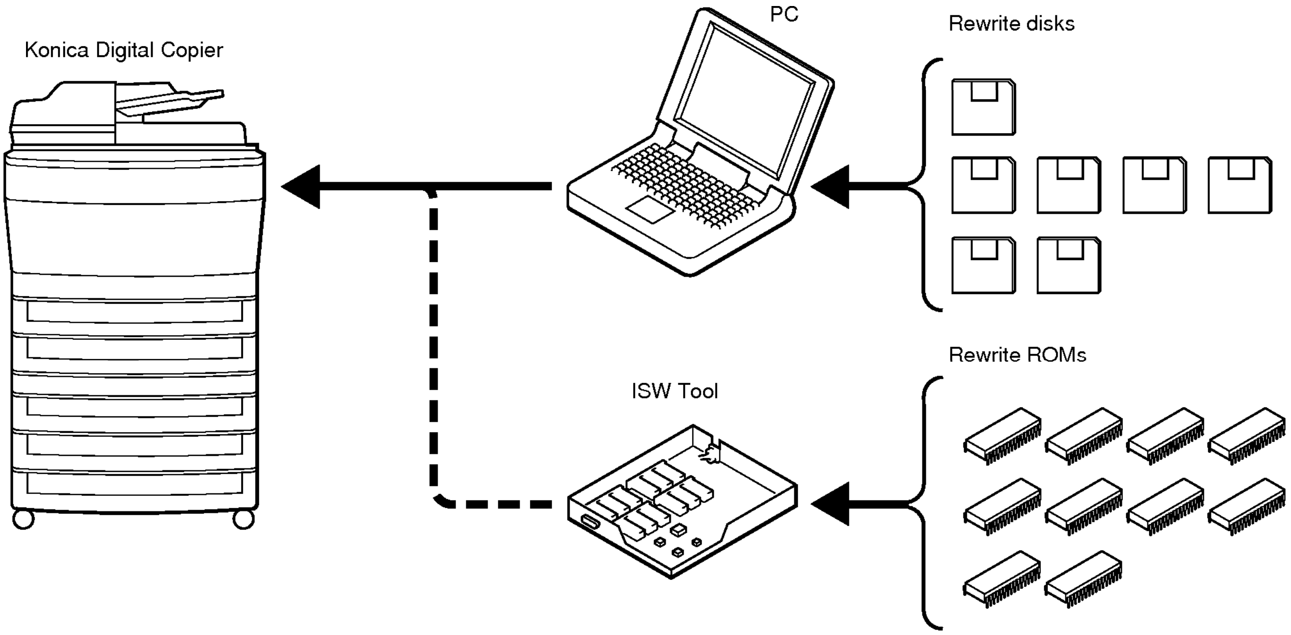
  [1] Electrical Parts Layout Drawing 1-5
  [2] Connector Layout Drawing............... 1-5

GENERAL DESCRIPTION OF ISW

ISW (In System Writing) is an operation for rewriting control programs stored in the flash ROM included in the control board of a Konica digital copier with the board still installed in the copier main body. By implementing ISW you can update versions of control programs without changing the board or carry out maintenance of the control board when changing the board.
For implementing ISW the following tools are required: (a) The ISW PC software to carry out rewriting by connecting a personal computer (PC) and a digital copier; (b) The ISW Tool used as a compact special tool for fast writing from PC software.
These tools allow direct rewriting of the control program in the flash ROM included in the copier main body by connecting the ISW connector of the copier main body.



SPECIFICATIONS

[1] PC Software for ISW

1. Structure of ISW PC software disks

- PCISW Tool (DOS) disk: 1 disk (for all board installation)
- PCISW Tool (Windows 95) disk: 2 disks (for all board installation)
- System control board rewrite disks: 4 disks
- Image control board rewrite disk: 1 disk
- Optional board rewrite disk: 1 disk

2. Software operating environment

- For PCISW Tool (DOS): PC operating with MS-DOS (Ver 6.2 or later) or PC DOS (Ver 6.3 or later). (Recommend a Pentium 100 MHz or better).
- For PCISW Tool (Windows 95): PC operating with Windows 95 (Recommend a Pentium 100 MHz or better).
- Memory: 640 kB or greater
- Hard disk drive capacity: 10 MB or greater.

3. Download time

System control board: Within approx. 4 minutes/4 MB
Image control board: Within approx. 2 minutes/0.5 MB
Optional board: Within approx. 2 minutes/0.5 MB

4. Required equipment for carrying out ISW.

- Personal computer (PC): 1 unit
- PCISW Tool (DOS) disk: 1 disk (for PCISW Tool (DOS))
- PCISW Tool (Windows 95) disk: 2 disks (for PCISW Tool (Windows 95))
- Rewrite disks: 1-6 disks (System control, image control, optional)
- Parallel cable: 1 (Amphe. 36 pin, D-Sub 25 pin)

MS-DOS is a registered trademark of Microsoft Corporation.
Windows 95 is a registered tradomark of Microsoft Corporation.
PC DOS is a registered trademark of International Business Machines Corporation.
Pentium is the registered trademark of Intel Corporation.

[2] ISW Tool

1. Structure of EPROM for ISW.

- System control board rewrite ROMs: 8
- Image control board rewrite ROMs: 2
- Optional board rewrite ROMs: 2

2. Specifications of mounted EPROM

4Mbit (0.5 X 8 bit, 32 pins)
M27C4001-12F1 (SGS-THOMSON)
Substitute: KC part number 943010900

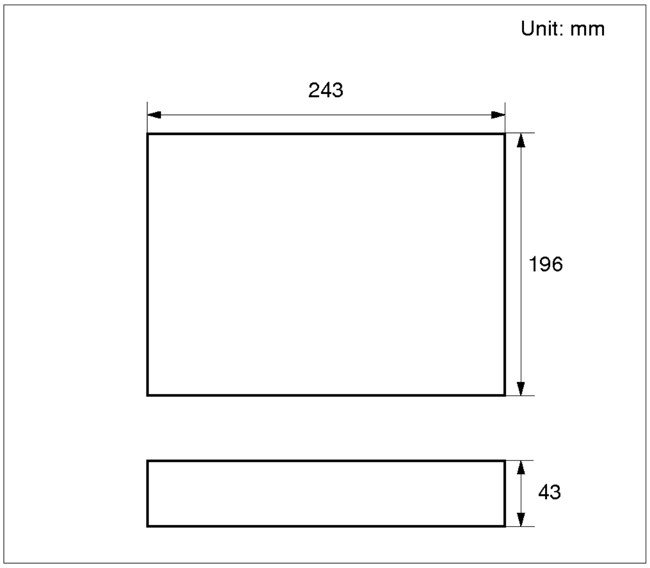
3. Download time

System control board:	Within approx. 3 minutes/4 MB
Image control board:	Within approx. 1 minute/0.5 MB
Optional board:	Within approx. 2 minutes/0.5 MB

4. Elements of equipment

Power source:	5V DC (supplied from main body).
Max. power consumption:	2.5 W or less
Weight:	Approx. 500 g (ROM not installed)

Machine dimensions.

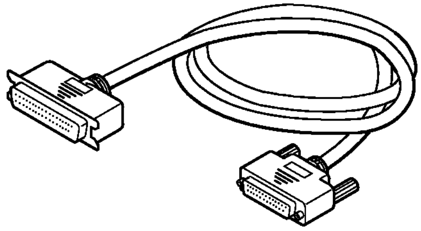


5. Machine operating environment

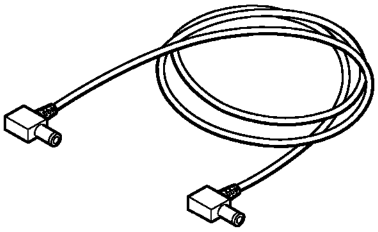
According to main body.

6. Accessory parts

- Parallel cable



- Power cable



7. Items required for carrying out ISW.

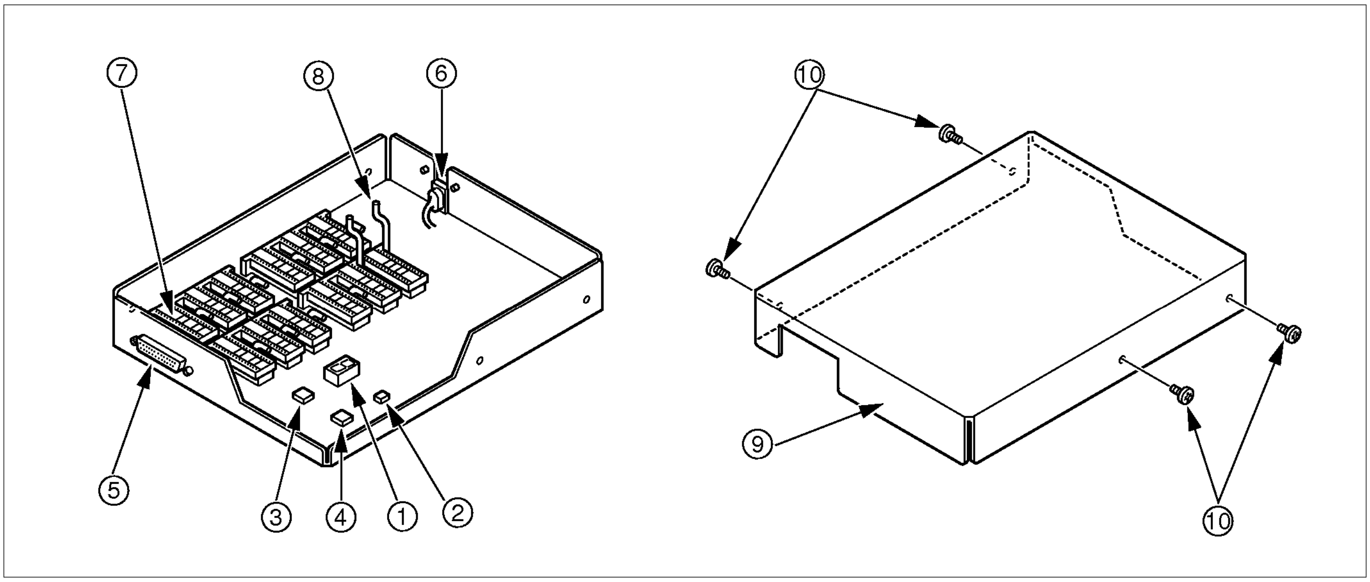
- ISW Tools
- Parallel cable
- Power cable

8. Safety

This equipment is not in compliance with CE directives. If this equipment is used near a radio or television receiver, it may cause radio interference.

Note: These specifications are subject to change without prior notice for the sake of improving the equipment.

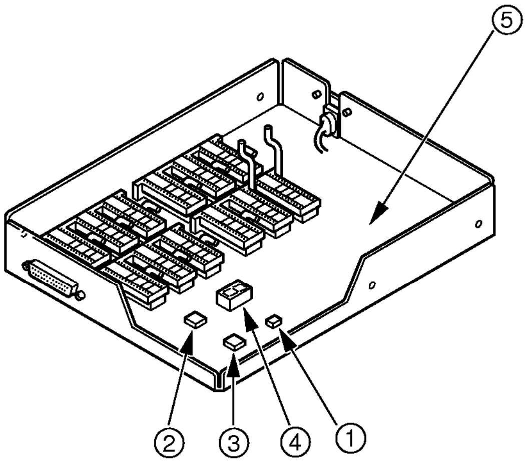
[3] Names of Individuals Sections of the ISW Tool



Number	Name	Function
①	State display (LED1) lamp	Carries out display of the power supply state, data rewriting state and errors.
②	RESET switch	Press in case of errors to return to the initial state.
③	MODE switch	Select the control board for rewriting.
④	START/STOP switch	Use to start or stop rewriting.
⑤	ISW Connector	Use to connect the copier and the ISW tool.
⑥	Power connector	Supplies the power for the ISW tool.
⑦	ROM sockets 1-12.	Use for installing the rewrite ROMs.
⑧	ROM retention levers	Used to retain the rewrite ROMs inserted in the sockets.
⑨	Cover	Close when storing or transporting the ISW tool.
⑩	Cover retention screws	Use to retain the cover (4 screws).

ISW TOOL ELECTRICAL LIST

[1] Electrical Parts Layout Drawing



1. Switches, sensors

① SW1 RESET switch
② SW2 MODE switch
③ SW3 START/STOP switch

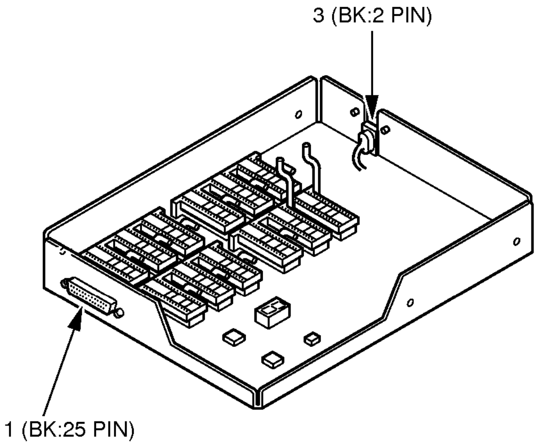
2. Load

④ LED1 State display (LED1) lamp

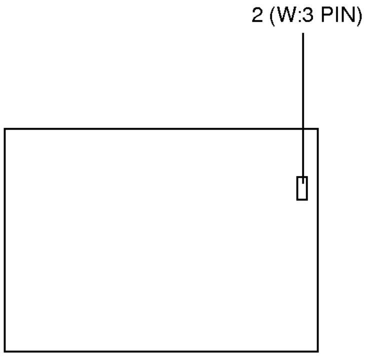
3. Board types, other

⑤ ISWCB Data transmission board

[2] Connector Layout Drawing



Data transmission board



2

OPERATION

2. OPERATION

METHOD OF OPERATING THE ISW........ 2-1

A. PC Software for ISW 2-1

- [1] PC Setup 2-1
- [2] Checking the ROM Version (before rewriting) 2-1
- [3] Connection 2-2
- [4] Rewriting Operations 2-2
- [5] Checking the ROM Version (after rewriting) 2-4
- △1 [6] List of Displays During Execution of ISW by PC....................................... 2-5

B. ISW Tool 2-7

- [1] Preparation...................................... 2-7
- [2] Checking the ROM Version (before rewriting) 2-7
- [3] Connection 2-8
- [4] Rewriting Operations........................ 2-9
- [5] Checking the ROM Version (after rewriting) 2-11
- △1 [6] List of Displays During Execution of ISW by ISW Tool 2-12

△3 C. PC Software for ISW (Windows 95)..... 2-14

- [1] PC setup 2-14
- [2] Checking the ROM Version (before rewriting) 2-15
- [3] Connection 2-15
- [4] Rewriting operations 2-16

METHOD OF OPERATING THE ISW

A. PC Software (DOS) for ISW

Caution: This method of operating the ISW is for a PC with the floppy disk drive set as drive A: and the hard disk drive set as drive C:. If using a PC other than this setting, compensate by substituting the manual driver specification command "a" or "c" with what is appropriate to your PC.

[1] PC Setup

Install the ISW PC software (DOS) and board rewrite data in the PC.

1. Start the PC with DOS.
   When using Windows 95 select "Restart the computer in the MS-DOS mode" from the menu at the end and carry out restart.
2. Insert the PCISW Tool (DOS) disk in the PC floppy disk drive.
3. Enter "a:\install c:" and press Enter key.
   Follow the instruction on the screen and press the Enter key again. The ISW PC software (DOS) is installed in the PC.

```
C:\>a:\install c:↵
```

4. Check that the directory of the PC reads as follows:
   C:\KONICA\PCISW\DATA
   If it is in another directory, input:
   cd c:\konica\pcisw\data
   Then press the Enter key to change the directory.

```
C:\KONICA\PCISW\DATA> ←Directory name
```

5. Insert the system control board rewrite disks (4 disks) or the image control board rewrite disk in the floppy disk drive and install the board rewrite data. (*1).
   For details on command, refer to the "1. Board rewriting data install command" of the "[6] List of displays During Execution of ISW by PC".

Example: **When installing the board rewrite data of Japan specification, machine type 7040 and ROM version 01 for the system control board.**

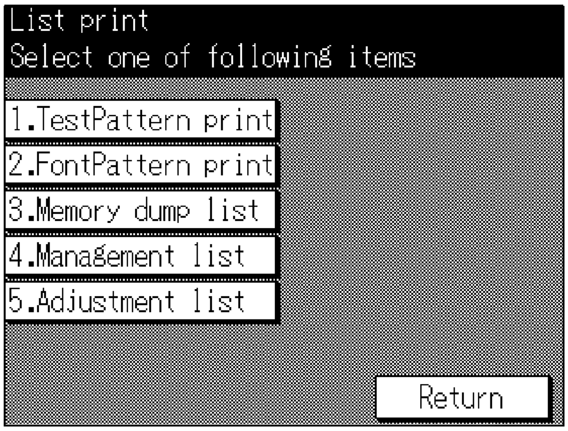
```
C:\KONICA\PCISW\DATA>cp c j 7040 01 a:↵
```

***1:**
When updating the data version, carry out only step 5. When installing same data version, the data will be written over the new data.

[2] Checking the ROM Version (before rewriting)

Before carrying out rewrite, check the ROM version of the present control program.
Output the management list in the 36 mode.

[List Print Menu Screen]



List print
Select one of following items

Step	Operation
1	Enter the 36 mode. Turn the SW1 (main power) ON and turn the SW2 (sub power) ON while pressing 3 and 6 of the copy quantity setting buttons.
2	**[36 Mode Menu Screen]** Press the 7.List print key.
3	**[List Print Menu Screen]** Press the 4.Management list key.
4	**[List Print Screen]** Press the COPY key.
5	**[Basic Screen]** Press the Start print button to output the list.
6	While pressing the P button, press the C button to return to the List Print screen.
7	**[List Print Screen]** Press the Return key to return to the List Print Menu screen.
8	**[List Print Menu Screen]** Press the Return key to return to the 36 Mode Menu screen.
9	Turn the SW2 (sub power) and the SW1 (main power) OFF.

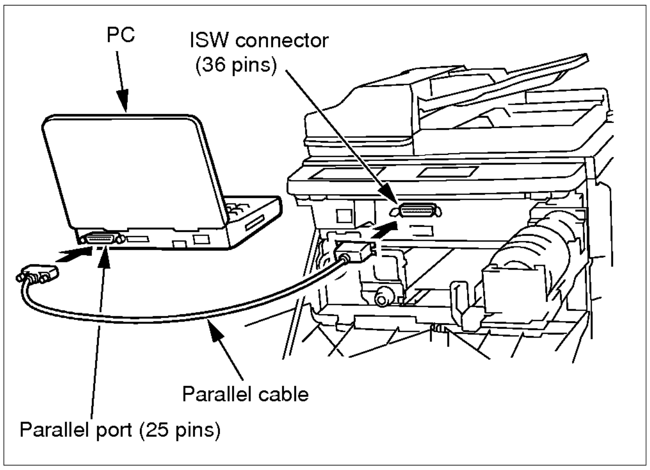
[3] Connection

Use the parallel cable to connect the copier and the PC.
Prepare the following for connection.

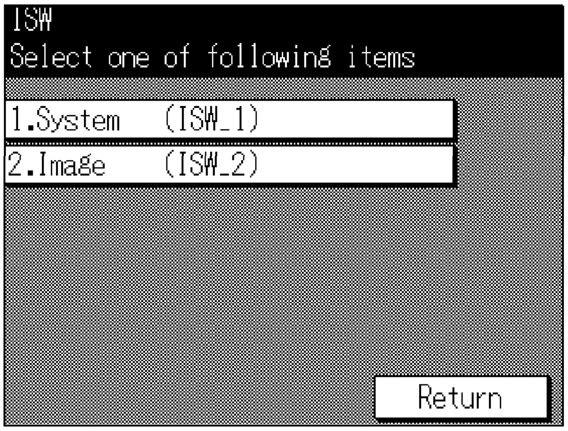
- PC on which board rewrite data install has been completed.
- Parallel cable

(Amphe. 36 pin/D-Sub 25 pin)

1. Turn the SW1 (main power) and the SW2 (sub power) OFF on the copier.
2. Open the front door on the copier.
3. Open the toner unit.
4. Use the parallel cable to connect the parallel port on the PC and the ISW connector on the copier.



5. Start the PC with the DOS mode.
   When using Windows 95 select “Restart the computer in the MS-DOS mode” from the menu at the end and carry out restart.
6. Set the copier in the 25 mode.
   Turn the SW1 (main power) ON and then turn the SW2 (sub power) ON while pressing 2 and 5 of the copy quantity setting buttons.
7. Select [11. ISW].
   [ISW Selection Screen]



ISW
Select one of following items

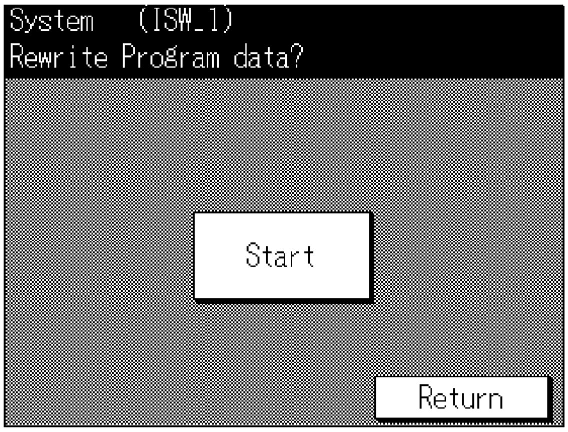
[4] Rewriting operations

This section describes the following rewriting operations.

a. When rewriting the system control board control program.
b. When rewriting the image control board control program.

a. When rewriting the system control board control program.

[System Control Board Rewriting Screen]



System (ISW_1)
Rewrite Program data?

	Step	Operation
	1	After correctly completing item ([3] Connection), press the 1.System (ISW_1) key on the ISW selection screen.
	2	**[System Control Board Rewriting Screen]** Press the Start key. The copier goes into the rewrite standby state.
⚠	3	Check that the directory of the PC reads as follows: C:\KONICA\PCISW\DATA If you are in another directory, input the following: cd c:\konica\pcisw\data Then press the Enter key to change the directory.
⚠	4	Input the rewrite command with DOS of the PC and press the Enter key. * For details on command, refer to the “2. Board rewriting command” of the “[6] List of displays During Execution of ISW by PC”. **Example: When rewriting the system control board for Japan specification, machine type 7040 and ROM version 01.** `C:\KONICA\PCISW\DATA>ld c j 7040 01↵`

Step	Operation
5	Check the display message and press the Enter key to start rewrite.
6	The copier screen goes off. The data lamp blinks (green). This stops after approx. 4 minutes with a Pentium 100 MHz PC.
△1 7	When rewrite is finished, the data lamp goes off and the copier automatically returns to the 25 mode menu screen.

Reference:
Refer to “[6] List of Displays During Execution of ISW by PC” regarding which screen display lamps on the copier and PC are lit during operations.

Caution: When continuing to rewrite the Image control board control program, select [11. ISW] from step 7 and then select [2. Image (ISW_2)] from the ISW selection screen to carry out rewriting.

b. When rewriting the Image control board control program

[Image Control Board Rewrite Screen]

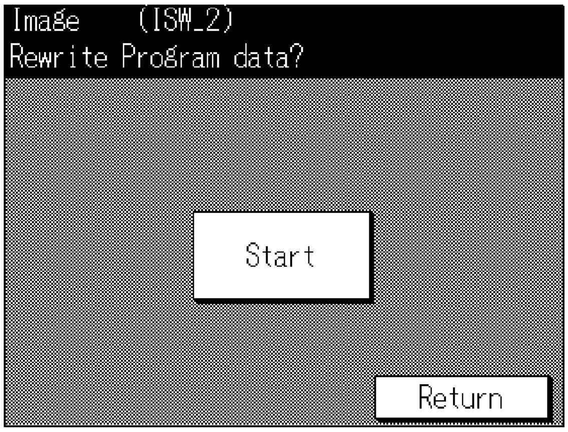


Image (ISW_2)
Rewrite Program data?

Step	Operation
1	After correctly completing item ([3] Connection), press the 2.Image (ISW_2) key on the ISW selection screen.
2	**[Image Control Board Rewrite Screen]** Press the Start key. The copier goes into the rewrite standby state.
△1 3	Check that the directory of the PC reads as follows: C:\KONICA\PCISW\DATA If you are in another directory, input the following: cd c:\konica\pcisw\data Then press the Enter key to change the directory.
△1 4	Input the rewrite command with DOS of the PC and press the Enter key. * For details on command, refer to the “2. Board rewriting command” of the “[6] List of displays During Execution of ISW by PC”. **Example: When rewriting the image control board for machine type 7033 and ROM version 99.** `C:\KONICA\PCISW\DATA>ld i 7033 99 ↵`

Step	Operation
5	Check the display message and press the Enter key to start rewrite.
△1 6	The message "Reading data" and "Writing data" will be displayed on the message display area of the copier according to the rewriting process. Rewriting is finished for approx. 40 seconds with a Pentium 100 MHz PC.
△1 7	When rewrite is finished, check that the message of "Finished normally" and displayed checksum.
8	Press Return key to return to the ISW Selection Screen.
9	**[ISW Selection Screen]** Press the Return key to return to the 25 Mode Menu Screen.

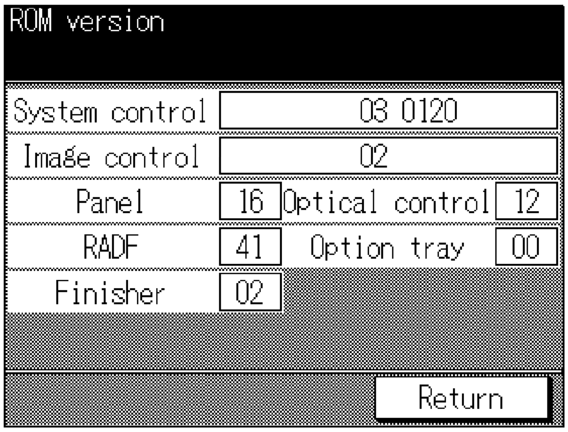
Reference:
Refer to "[6] List of Displays During Execution of ISW by PC" regarding which screen displays lamps on the copier and PC are lit during operations.

Caution: When continuing to rewrite the system control board control program, select [1. System (ISW_1)] from step 9 to carry out rewriting.

[5] Checking the ROM Version (after rewriting)

Check the ROM version of the control program which has been rewritten.
The item names are displayed on the ROM Version Display Screen. To the right are displayed the ROM versions. If there are options that have not been installed, the applicable location will be blank.

[ROM Version Display Screen]



ROM version

System control 03 0120

Image control 02

Panel 16

Optical control 12

RADF 41

Option tray 00

Finisher 02

Step	Operation
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 9.ROM version key.
3	**[ROM Version Display Screen]** Check the ROM version of the board on which the control program has been rewritten.
4	Press the Return key to return to the 25 Mode Menu Screen.
5	**[25 Mode Menu Screen]** Turn the SW2 (sub power) OFF.

[6] List of Displays During Execution of ISW by PC

△1 1. Board rewriting data install command

Command	Board	Destination	Machine type	ROM version
cp	c: System control board	j: Japan m: U.S.A. e: Europe	7040: 7040 7033: 7033	00 - 99
	i: Image control board	Non	7040: 7040 7033: 7033	00 - 99

Example for use (*1)

- △3 When installing the board rewrite data of Japan specification, machine type 7040 and ROM version 01 for the system control board from a floppy disk.

```
cp␣c␣j␣7040␣01␣a:
```

- △3 When installing the board rewrite data of machine type 7033 and ROM version 99 for the image control board from a floppy disk.

```
cp␣i␣7033␣99␣a:
```

△1 2. Board rewriting command

Command	Board	Destination	Machine type	ROM version
ld	c: System control board	j: Japan m: U.S.A. e: Europe	7040: 7040 7033: 7033	00 - 99
	i: Image control board	Non	7040: 7040 7033: 7033	00 - 99

Example for use (*1)

- When rewriting the system control board data for Japan specification, machine type 7040 and ROM version 01 data.

```
ld␣c␣j␣7040␣01
```

- When rewriting the image control board data for machine type 7033 and ROM version 99 data.

```
ld␣i␣7033␣99
```

*1: "␣" in the command described for use shows that a space should be input.

△1 3. Copier and PC displays

	System control (MS-DOS Ver. 6.2, Pentium 100MHz at approx. 4 minutes)		Image control (MS-DOS Ver. 6.2, Pentium 100MHz at approx. 2 minutes)	
	Copier	**PC**	**Copier**	**PC**
Standby state	The Start key is reversed (grey)."Reading data." Data lamp (green) is lit.		The Start key is reversed (grey)."Reading data." Data lamp (green) is lit.	
During data transmission		ld command		ld command
	LCD screen is extinguished. Data lamp (green) is blinking.		"Reading data." Data lamp (green) is blinking.	
During data rewriting.	LCD screen is extinguished. Data lamp (green) is blinking.	"ISW completed"	"Writing data." Data lamp (green) is extinguished.	"ISW completed"
Rewriting finished.	Return to 25 mode menu screen.		"Finished normally." Data lamp (green) is extinguished. Checksum display in message display area.	

△1 4. Error displays and response methods

a. System control

	Copier	PC	Cause	Response method
1	"Error generated during reading." Error lamp (red) lights.	"Not ready writing device PRN."	Transmitted data other than system control board data.	(1) Press the STOP/CLEAR button on the copier. (2) Press the Control key (Ctrl) and C key on the PC simultaneously. (3) Disconnect the cable and then connect the cable again. (4) Start from the beginning for both the copier and the PC.
2	LCD screen is extinguished. Data lamp (green) is lit.	"ISW completed"	Transmitted data of other model.	(1) Operation of copier not necessary. (2) Input the correct command with DOS on the PC.
3	The LCD screen is extinguished. The error lamp (red) is lit.	"Write fault error writing device PRN."	Abnormality in cable connection during data transfer.	(1) Disconnect the cable and then connect the cable again. (2) Turn the SW1 (main power) and the SW2 (sub power) on the copier ON and OFF. Data lamp (green) lights. (3) After pressing the Control key (Ctrl) and C key on the PC simultaneously, input the command again.

△1 b. Image control

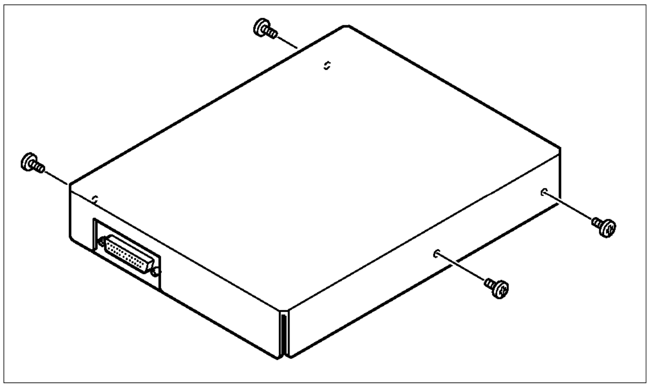
	Copier	PC	Cause	Response method
1	"Error generated during reading." Error lamp (red) lights.	"Not ready writing device PRN."	Transmitted data other than image control data.	(1) Press the STOP/CLEAR button on the copier. (2) Press the Control key (Ctrl) and C key on the PC simultaneously. (3) Disconnect the cable and then connect the cable again. (4) Start from the beginning for both the copier and the PC.
2	"Reading data." Data lamp (green) is blinking.	"ISW completed"	Transmitted data of other model.	(1) Press the STOP/CLEAR button on the copier. (2) Press the Control key (Ctrl) and C key on the PC simultaneously. (3) Start from the beginning for both the copier and the PC.
3	"Error generated during writing." Error lamp (red) lights.	"Write fault error writing device PRN."	Abnormality in cable connection during data transfer.	(1) Disconnect the cable and then connect the cable again. (2) Press the STOP/CLEAR button on the copier. (3) Press the Control key (Ctrl) and C key on the PC simultaneously. (4) Start from the beginning for both the copier and the PC.

B. ISW Tool

[1] Preparation

Insert the ISW EPROM in the ISW tool.

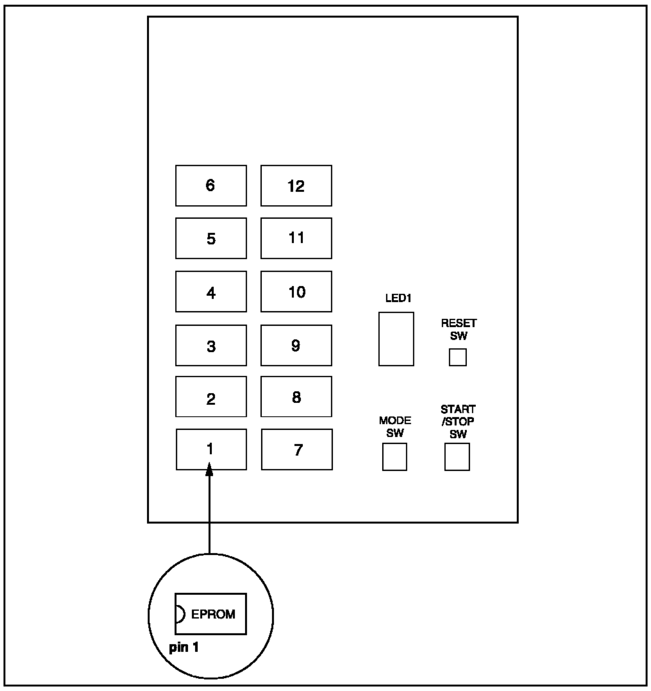
1. Open the cover on the ISW tool.
   Remove the four screws retaining the cover.



2. Install the ISW EPROM.
   Raise the lever retaining the ROM and securely insert the pins on the ISW EPROM in the hole in the socket.
   After installation, lower the lever retaining the ROM to retain the ISW EPROM.

The number of ISW EPROMs and the installation position may differ according to the rewrite control program.

Board	Number of ROMs	Installation position
System control	8	1-8
Image control	2	9,10
Option	2	11,12



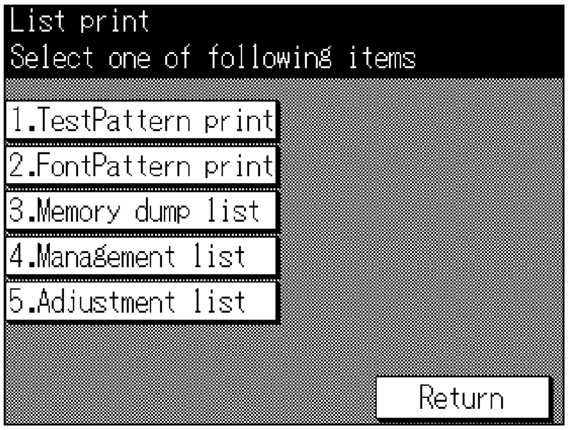
Caution: Match the position of the ROM pin1 and socket pin1 to install.

[2] Checking the ROM Version (before rewriting)

Before carrying out rewriting, check the ROM version of the control program in the present state.

Output the Management list in the 36 Mode.

[List Print Menu Screen]



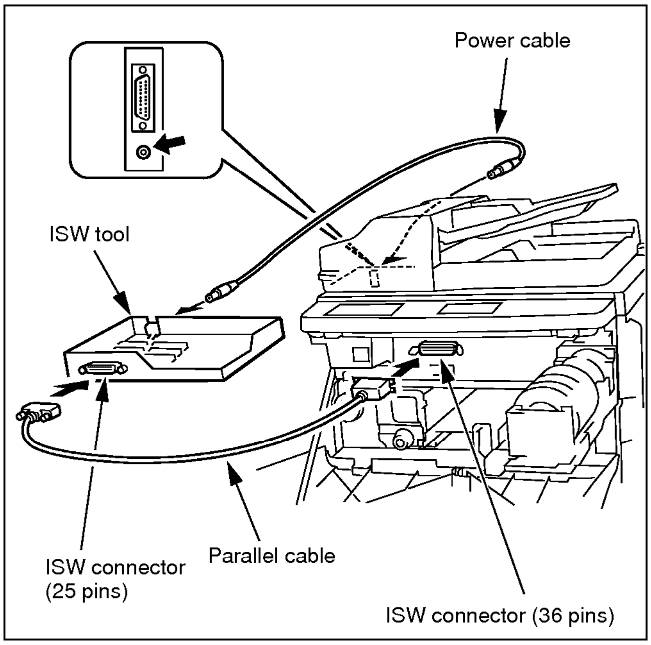
List print
Select one of following items

Step	Operation
1	Enter the 36 mode. Turn the SW1 (main power) ON and turn the SW2 (sub power) ON while pressing 3 and 6 of the copy quantity setting buttons.
2	**[36 Mode Menu Screen]** Press the 7.List print key.
3	**[List Print Menu Screen]** Press the 4.Management list key.
4	**[List Print Screen]** Press the COPY key.
5	**[Basic Screen]** Press the Start print button to output the list.
6	While pressing the P button, press the C button to return to the List Print screen.
7	**[List Print Screen]** Press the Return key to return to the List Print Menu screen.
8	**[List Print Menu Screen]** Press the Return key to return to the 36 Mode Menu screen.
9	Turn the SW2 (sub power) and the SW1 (main power) OFF.

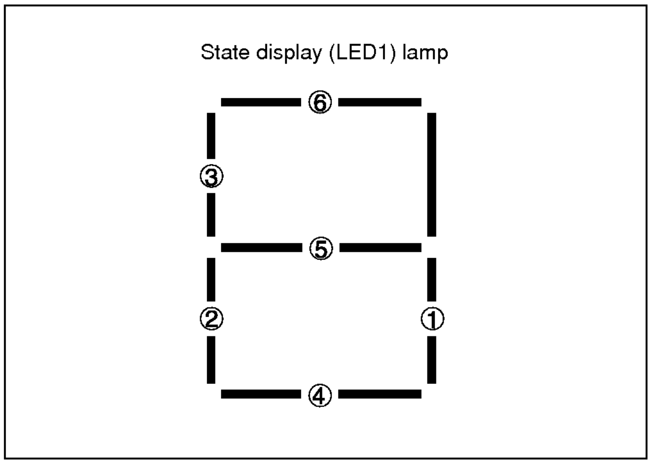
[3] Connection

Use the accessory parallel cable to connect the copier and the ISW tool.
Prepare the following for connection.
- ISW tool (in which EPROM has been installed)
- Parallel cable (accessory)
- Power cable (accessory)

1. Turn the SW1 (main power) source and the SW2 (sub power) OFF on the copier.
2. Open the front door on the copier.
3. Open the toner unit.
4. Use the parallel cable to connect the ISW connectors on the ISW tool and the copier.
5. Use the power cable to connect the power connector of the ISW tool and the 5V DC power source (ISW power connector) of the copier.

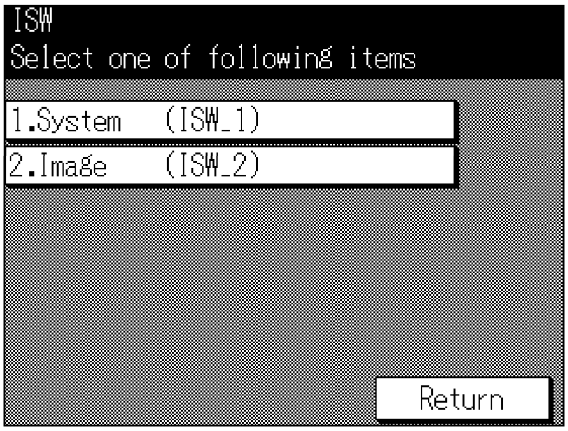


△1 6. Check the ROM mount condition of the ISW tool.
Turn the main power ON, then the segment of the state display (LED1) lamp on the ISW tool will be lit as follows.
Each segment lit according to the mounted ROM.
1: Program normal operation
2: System control board rewrite ROM (the first half)
3: System control board rewrite ROM (the second half)
4: System control board rewrite ROM (all mount)
5: Image control board rewrite ROM
6: Option board rewrite ROM



The segment that the ROM is not mounted is not lit.
The ISW tool goes into the standby state, then "0" will be displayed.

7. Set the copier in the 25 mode.
Turn the power ON while pressing 2 and 5 of the copy quantity setting buttons.
8. Select [11. ISW].
[ISW Selection Screen]


ISW
Select one of following items

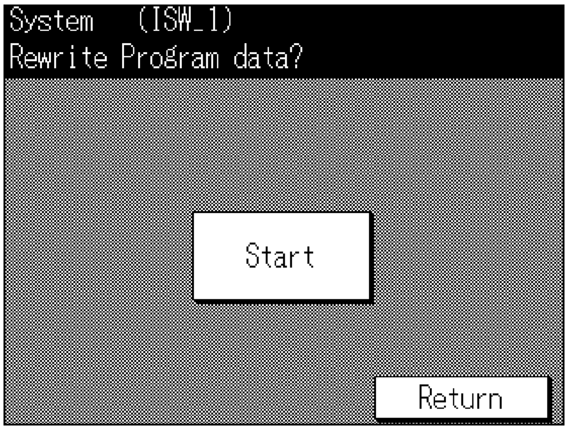
[4] Rewriting Operations

This section describes the following rewriting operations.

a. When rewriting the system control board control program.
b. When rewriting the image control board control program.

a. When rewriting the system control board control program.

[System Control Board Rewriting Screen]


System (ISW_1)
Rewrite Program data?

Step	Operation
1	After correctly completing item ([3] Connection), press the 1.System (ISW_1) key on the ISW selection screen.
2	**[System Control Board Rewriting Screen]** Press the Start key. The copier goes into the rewrite standby state.
3	Press the MODE switch on the ISW tool to cause “1” to light in the state display (LED1) lamp.
4	Press START/STOP switch on the ISW tool to start writing. “ [” and “] ” light alternately in the state display LED1. The copier screen extinguishes and the data lamp (green) blinks. Rewriting is finished for approx. 3 minutes.
△1 5	When rewriting is finished, “1” will be blinked on the state display (LED1) lamp on the ISW tool. Press the START/STOP switch to make the ISW tool go into the standby state (“1” display). The copier automatically returns to the 25 mode menu screen.

Reference:

- Refer to “[6] List of Displays During Execution of ISW by ISW Tool” regarding which screen display lamps on the copier and PC are lit during operations.
- When continuing to rewrite the Image control board control program, select [11. ISW] from step 5 and select [2. Image (ISW_2)] from the ISW selection screen to carry out rewriting.

b. When rewriting the image control board control program.

[Image Control Board Rewrite Screen]

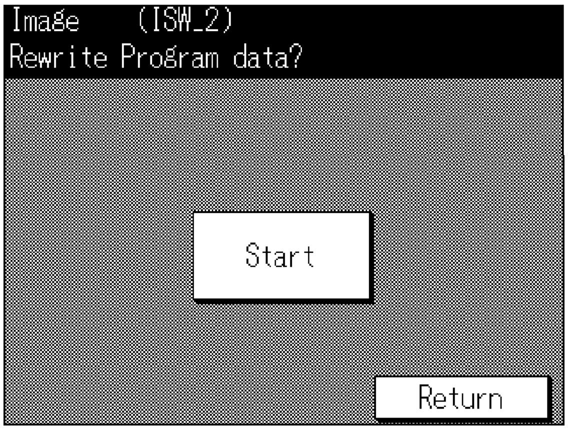


Image (ISW_2)
Rewrite Program data?

Step	Operation
1	After correctly completing item ([3] Connection), press the 2.Image (ISW_2) key on the ISW selection screen.
2	**[Image Control Board Rewrite Screen]** Press the Start key. The copier goes into the rewrite standby state.
3	Press the MODE switch on the ISW tool to cause “2” to light in the state display (LED1) lamp.
4	Press START/STOP switch on the ISW tool to start writing. “[” and “] ” lights alternately in the state display LED1. The copier screen extinguishes and the data lamp (green) blinks. Rewriting is finished for approx. 1 minute.
△1 5	When rewriting is finished, “2” will be blinked on the state display (LED1) lamp on the ISW tool. Press the START/STOP switch to make the ISW tool go into the standby state (“2” display). When rewrite is finished, check that the message of "Finished normally" and displayed checksum.
6	Press the Return key to return to the ISW Selection Screen.
7	**[ISW Selection Screen]** Press the Return key to return to the 25 Mode Menu Screen.

Reference:

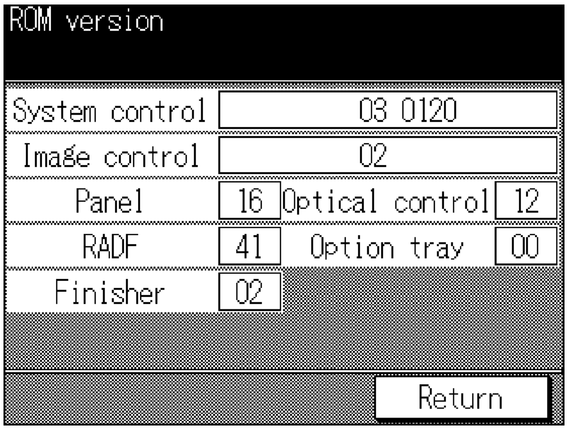
- Refer to “[6] List of Displays During Execution of ISW by ISW Tool” regarding which screen display lamps on the copier and PC are lit during operations.
- When continuing to rewrite the system control board control program, serect [1. System (ISW_1)] from step 7 to carry out rewriting.

[5] Checking the ROM Version (after rewriting)

Check the ROM version of the control program which has been rewritten.

The item names are written on the ROM Version Display Screen. To the right are displayed the ROM versions. If there are options that have not been installed, the applicable location will be empty.

[ROM Version Display Screen]



ROM version

System control: 03 0120
Image control: 02
Panel: 16
Optical control: 12
RADF: 41
Option tray: 00
Finisher: 02

Step	Operation
1	Enter the 25 mode.
2	**[25 Mode Menu Screen]** Press the 9.ROM version key.
3	**[ROM Version Display Screen]** Check the ROM version of the board on which the control program has been rewritten.
4	Press the Return key to return the 25 Mode Menu Screen.
5	**[25 Mode Menu Screen]** Turn the SW2 (sub power) OFF.

△1 [6] List of Displays During Execution of ISW by ISW Tool

△1 1. Copier and ISW tool displays

	System control (approx. 3 minutes)		Image control (approx. 1 minute)	
	Copier	**ISW tool**	**Copier**	**ISW tool**
Standby state	The Start key is reversed (grey). "Reading data. "Data lamp (green) is lit.		The Start key is reversed (grey). "Reading data." Data lamp (green) is lit.	
During data transmission	LCD screen is extinguished. Data lamp (green) is blinking.	" [" and "] " are alternately lighting.	"Reading data." Data lamp (green) is blinking.	" [" and "] " are alternately lighting.
During data rewriting	LCD screen is extinguished. Data lamp (green) is blinking.		"Writing data." Data lamp (green) is extinguished.	"2" is blinking.
Rewriting finished	Return to the 25 mode menu screen.	"1" is blinking.	"Finished normally." Data lamp (green) is extinguished. Checksum display in message display area on line 2.	

2. Error displays and response methods

△1 a. System control

	Copier	ISW tool	Cause	Response method
1	The Start key is reversed (grey). "Reading data." Data lamp (green) is lit.	"E151" displayed in order.	Installation of system control board rewrite ROM are not proper.	(1) Press the STOP/CLEAR button on the copier. (2) Press the RESET switch on the ISW tool. (3) Check that the ROM installation position, ROM installation order, position of the pin 1 and bend of pin. (4) Start from the beginning for both the copier and the ISW tool.
2	The Start key is reversed (grey). "Reading data." Data lamp (green) is lit.	"E152" displayed in order.	Carried out ISW with cable not yet connected.	(1) Check the cable connection. (2) Not necessary to operate the copier. (3) Press the START/STOP switch on the ISW tool and then operate again from step 3 of "[4] Rewriting Operations".
3	"Error generated during reading." Error lamp (red) lights.	" –. " is lit.	Transmitted data other than system control board.	(1) Press the STOP/CLEAR button on the copier. (2) Press the RESET switch on the ISW tool and then operate again from step 3 of "[4] Rewriting Operations".
4	LCD screen is extinguished. Data lamp (green) is lit.	" [" is lit.	Abnormality in cable connection prior to data transfer.	(1) Check the cable connection. (2) Press the RESET switch on the ISW tool and then operate again from step 3 of "[4] Rewriting Operations".
5	LCD screen is extinguished. Error lamp (red) is lit.	" [" is lit.	Abnormality in cable connection during data transfer.	(1) Check the cable connection. (2) Turn the SW2 (sub power) ON and OFF on the copier. The data lamp (green) lights. (3) Press the RESET switch on the ISW tool and then operate again from step 3 of "[4] Rewriting Operations".

△1 b. Image control

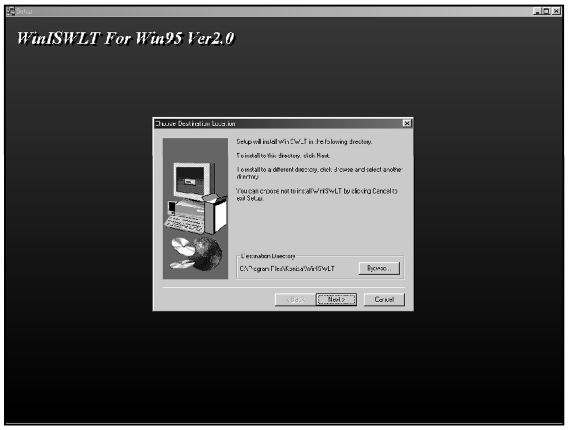
	Copier	ISW tool	Cause	Response method
1	The `Start` key is reversed (grey). "Reading data." Data lamp (green) is lit.	"E251" displayed in order.	Installation of image control board rewrite ROM are not proper.	(1) Press the STOP/CLEAR button on the copier. (2) Press the RESET switch on the ISW tool. (3) Check that the ROM installation position, ROM installation order, position of the pin 1 and bend of pin. (4) Start from the beginning for both the copier and the ISW tool.
2	The `Start` key is reversed (grey). "Reading data." Data lamp (green) is lit.	"E252" displayed in order.	Carried out ISW with cable not yet connected.	(1) Check the cable connection. (2) Not necessary to operate the copier. (3) Press the START/STOP switch on the ISW tool and then operate again to step 3 of "[4] Rewriting Operations".
3	"Error generated during reading." Error lamp (red) lights.	" –. " is lit.	Transmitted data other than Image control.	(1) Press the STOP/CLEAR button on the copier. (2) Press the RESET switch on the ISW tool and then operate again to step 3 of "[4] Rewriting Operations".
4	"Error generated during writing." Error lamp (red) lights.	" [" is lit.	Abnormality in cable connection prior to data transfer.	(1) Check the cable connection. (2) Press the STOP/START button on the copier. (3) Press the RESET switch on the ISW tool and then operate again to step 3 of "[4] Rewriting Operations".
5	Abnormality finished.	" 2 " is lit.	Checksum error after execution of ISW.	(1) Check cable connection. (2) Start from the beginning for both the copier and the ISW tool.

C. PC Software for ISW (Windows 95)

[1] PC setup

Install the ISW PC software (Windows 95) and board rewrite data in the PC.

1. Start the PC with Windows 95.
2. Insert disk 1 of the PCISW Tool (Windows 95) into the PC floppy disk drive.
3. Start Explorer, execute “setup.exe” in disk 1.
   The WinISWLT setup program will start.



Setup will install WinISWLT in the following directory.

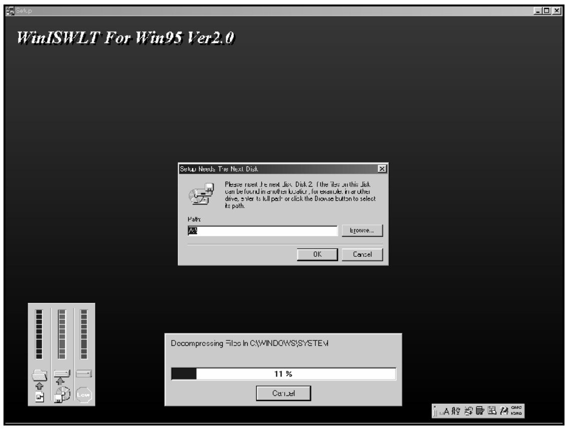
To install to this directory, click Next.

To install to a different directory, click Browse and select another directory.

You can choose not to install WinISWLT by clicking Cancel to exit Setup.

Destination Directory: C:\Program Files\Konica\WinISWLT

4. Click on the Next > key.
   (The initial setting for the directory that the ISW PC software (Windows 95) will be installed to [C:\Program File\Konica\WinISWLT].)
5. When “Setup Needs The Next Disk” is displayed, remove PCISW Tool (Windows 95) disk 1 from the floppy disk drive and insert disk 2 then click on the OK key.



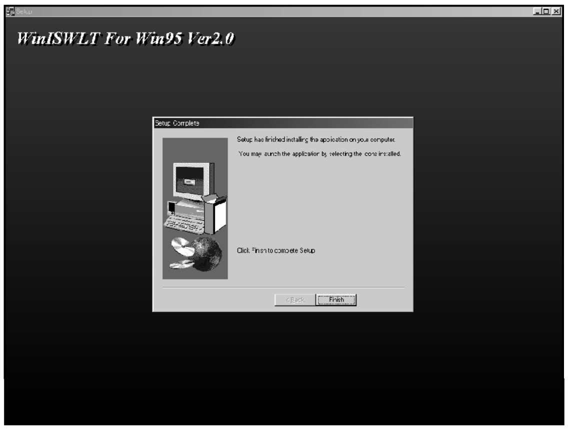
Please insert the next disk, Disk 2. If the files on this disk can be found in another location, for example, in another drive, enter its full path or click the Browse button to select its path.

Path: A:\

Decompressing Files In C:\WINDOWS\SYSTEM

11 %

6. When the “Setup Complete” screen is displayed, click on the Finish key to complete the installation.



Setup has finished installing the application on your computer.

You may launch the application by selecting the icons installed.

Click Finish to complete Setup.

7. Insert the system control board rewrite disks (4 disks) or the image control rewrite disk into the floppy disk drive, start explorer and copy the board rewrite data into the directory “C:\Program File\Konica\WinISWLT\Data”.

***1:**

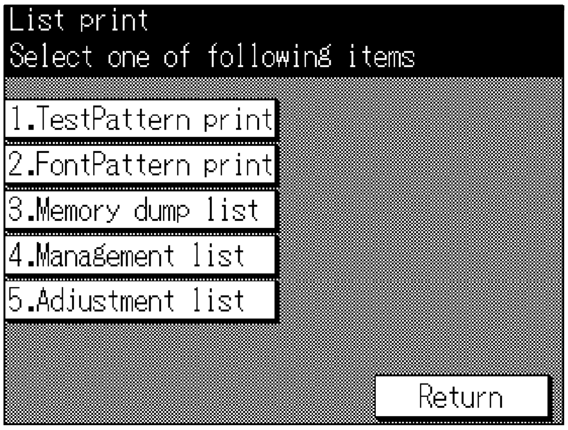
When updating the data version, carry out only step 7. When installing same data version, the data will be written over the new data.

[2] Checking the ROM Version (before rewriting)

Before carrying out rewrite, check the ROM version of the present control program.

Output the management list in the 36 mode.

[List Print Menu Screen]



List print
Select one of following items

1.TestPattern print
2.FontPattern print
3.Memory dump list
4.Management list
5.Adjustment list
Return

Step	Operation
1	Enter the 36 mode. Turn the SW1 (main power) ON and turn the SW2 (sub power) ON while pressing 3 and 6 of the copy quantity setting buttons.
2	**[36 Mode Menu Screen]** Press the 7.List print key.
3	**[List Print Menu Screen]** Press the 4.Management list key.
4	**[List Print Screen]** Press the COPY key.
5	**[Basic Screen]** Press the Start print button to output the list.
6	While pressing the P button, press the C button to return to the List Print screen.
7	**[List Print Screen]** Press the Return key to return to the List Print Menu screen.
8	**[List Print Menu Screen]** Press the Return key to return to the 36 Mode Menu screen.
9	Turn the SW2 (sub power) and the SW1 (main power) OFF.

[3] Connection

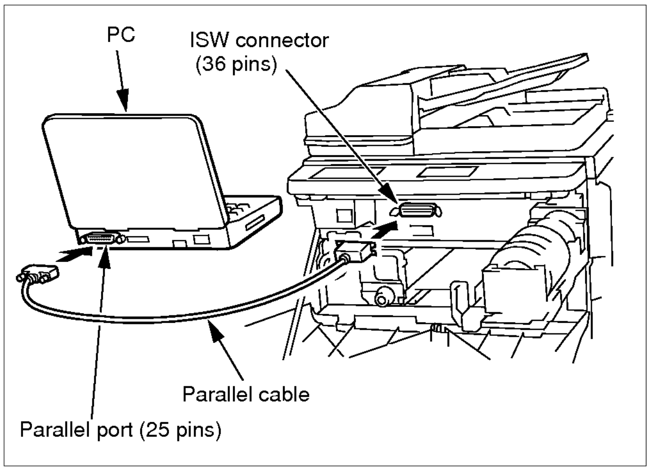
Use the parallel cable to connect the copier and the PC.

Prepare the following for connection.

- PC on which board rewrite data install has been completed.
- Parallel cable

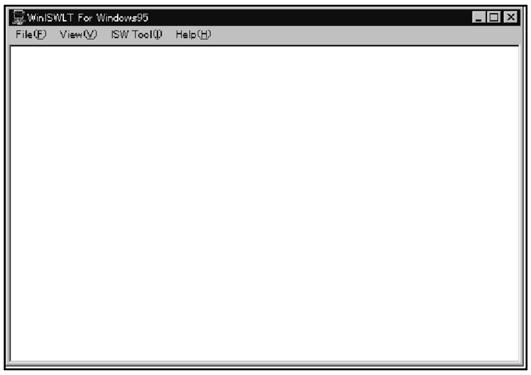
(Amphe. 36 pin/D-Sub 25 pin)

1. Turn the SW1 (main power) and the SW2 (sub power) OFF on the copier.
2. Open the front door on the copier.
3. Open the toner unit.
4. Use the parallel cable to connect the parallel port on the PC and the ISW connector on the copier.



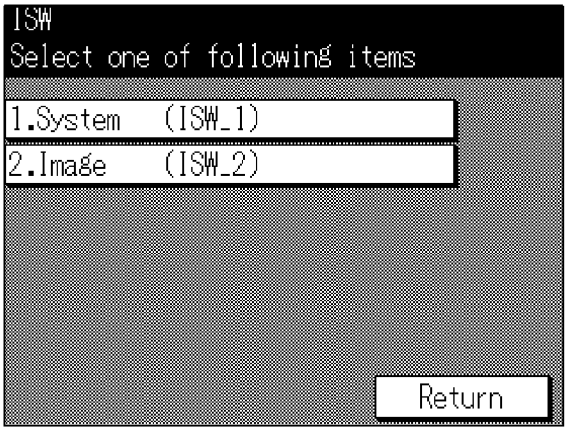
PC
ISW connector
(36 pins)
Parallel cable
Parallel port (25 pins)

5. Start the PC with Windows 95.
6. Select the “Start” button on the taskbar and select [WinISWLT] in [WinISW] from [Programs].
   WinISWLT will start.



WinISWLT For Windows95
File(F) View(V) ISW Tool(I) Help(H)

7. Set the copier in the 25 mode.
   Turn the SW1 (main power) ON and then turn the SW2 (sub power) ON while pressing 2 and 5 of the copy quantity setting buttons.
8. Select [11. ISW].
   [ISW Selection Screen]



ISW
Select one of following items

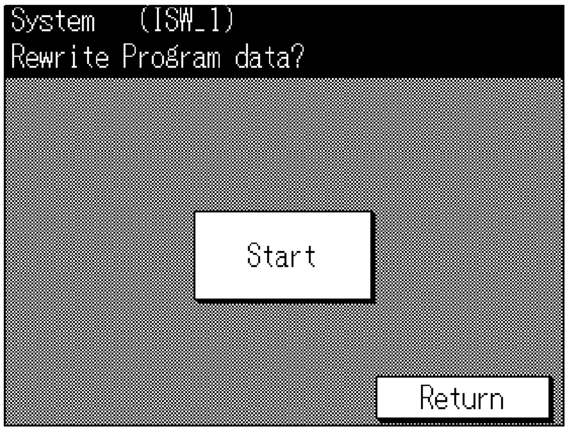
1.System (ISW_1)
2.Image (ISW_2)
Return

[4] Rewriting operations

This section describes the following rewriting operations.

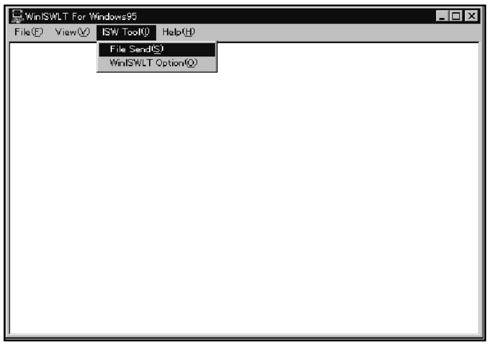
a. When rewriting the system control board control program.
b. When rewriting the image control board control program.

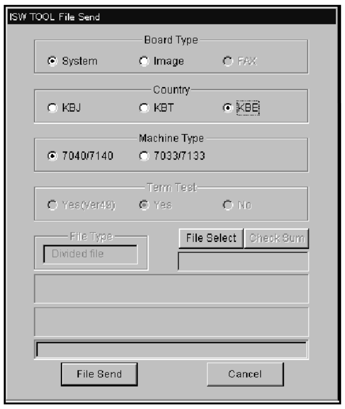
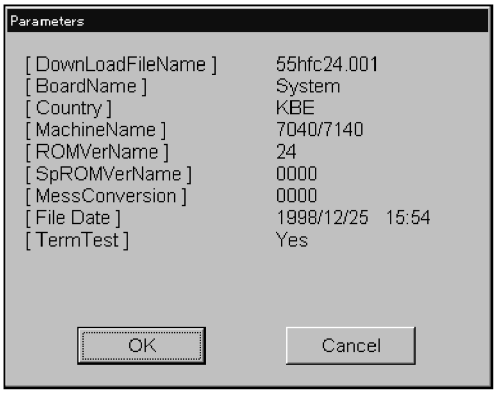
a. When rewriting the system control board control program.
[System Control Board Rewriting Screen]



System (ISW_1)
Rewrite Program data?

Start
Return

Step	Operation
1	After correctly completing item ([3] Connection), press the 1.System (ISW_1) key on the ISW selection screen.
2	**[System Control Board Rewriting Screen]** Press the Start key. The copier goes into the rewrite standby state.
3	Select [File Send] in [ISW Tool] from the PC menubar.  WinISWLT For Windows95 File(F) View(V) ISW Tool(I) Help(H) File Send(S) WinISWLT Option(O)

Step	Operation
4	**[ISW TOOL File Send screen]** Click on "System" in [Board Type], click on the machine specification in [Country] and click on the machine type to rewrite in [Machine type]. Then click on the File Select key and select the system control program to rewrite and click on the File Send key. **Example: When rewriting the KBE, 7040, ROM version 24 system control program.**  ISW TOOL File Send Board Type: ● System ○ Image ○ FAX Country: ○ KBJ ○ KBT ● KBE Machine Type: ● 7040/7140 ○ 7033/7133 Term Test: ○ Yes(Ver49) ● Yes ○ No File Type: Divided file
5	**[Parameters screen]** Confirm the contents and if there are no errors, click on the OK key and the rewriting of the system control program will start.  Parameters [DownLoadFileName] 55hfc24.001 [BoardName] System [Country] KBE [MachineName] 7040/7140 [ROMVerName] 24 [SpROMVerName] 0000 [MessConversion] 0000 [File Date] 1998/12/25 15:54 [TermTest] Yes
6	The copier screen goes off. The data lamp blinks (green).
7	When rewrite is finished, the data lamp goes off and the copier automatically returns to the 25 mode menu screen.

Reference:
When continuing to rewrite the Image control board control program, select [11. ISW] from step 7 and then select [2. Image (ISW_2)] from the ISW selection screen to carry out rewriting.

Caution: The message "ISW File Send OK!!" will be displayed on the PC screen. However, the program will still not be completely rewritten on the copy machine side. Leave them until the 25 mode menu screen returns.

b. When rewriting the Image control board control program
[Image Control Board Rewrite Screen]

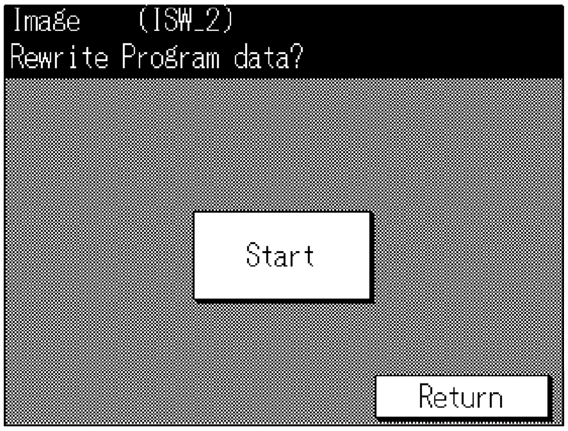
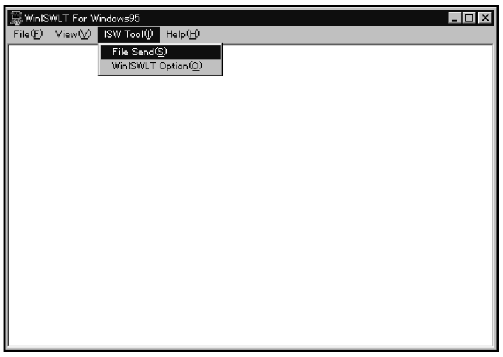
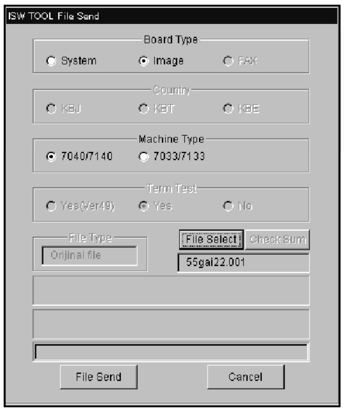
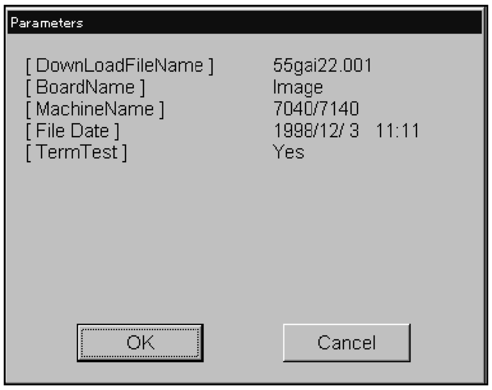


Image (ISW_2)
Rewrite Program data?

Step	Operation
1	After correctly completing item ([3] Connection), press the 2.Image (ISW_2) key on the ISW selection screen.
2	**[Image Control Board Rewrite Screen]** Press the Start key. The copier goes into the rewrite standby state.
3	Select [File Send] in [ISW Tool] from the PC menu bar.  WinISWLT For Windows95 File(F) View(V) ISW Tool(I) Help(H) File Send(S) WinISWLT Option(O)
4	**[ISW TOOL Fine Send screen]** Click on "Image" in [Board Type] and click on the machine type to rewrite in [Machine type]. Then click on the File Select key and click on the image control program to be rewritten and click on the File Send key. **Example: When rewriting 7040, ROM version 22 image control program.**  ISW TOOL File Send Board Type: ○ System ● Image ○ FAX Country: ○ KBJ ○ KBT ○ KBE Machine Type: ● 7040/7140 ○ 7033/7133 Term Test: ○ Yes(Ver49) ● Yes ○ No File Type: Orijinal file 55gai22.001

Step	Operation
5	**[Parameters screen]** Confirm the contents and if there are no errors, click on the OK key and rewriting of the image control program will start.  Parameters [DownLoadFileName] 55gai22.001 [BoardName] Image [MachineName] 7040/7140 [File Date] 1998/12/ 3 11:11 [TermTest] Yes
6	The message "Reading data" and "Writing data" will be displayed on the message display area of the copier according to the rewriting process.
7	When rewrite is finished, check that the message of "Finished normally" and displayed checksum.
8	Press Return key to return to the ISW Selection Screen.
9	**[ISW Selection Screen]** Press the Return key to return to the 25 Mode Menu Screen.

Reference:
When continuing to rewrite the system control board control program, select [1. System (ISW_1)] from step 9 to carry out rewriting.

Caution: The message “ISW File Send OK!!” will be displayed on the PC screen. However, the program will still not be completely rewritten on the copy machine side. Leave them until the message “Completed” and the checksum is displayed.

Konica

DB-208/208A

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to C-1 in Main Body

1. MAIN BODY

2. ELECTRICAL PARTS LIST

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

SAFETY AND IMPORTANT WARNING ITEMS

Carefully read the Safety and Important Warning Items described below and understand them before doing service work.

IMPORTANT NOTICE

Konica Corporation strongly recommends that all servicing be performed only by Konica-trained service technicians. This is because of the possible hazards to an inexperienced person servicing equipment, as well as the risk of damage to equipment.

Changes may have been made to this equipment to improve its performance after this Service Manual was printed. Accordingly, Konica Corporation makes no representations or warranties, either expressed or implied, that the information contained in this Service Handbook is complete or accurate. It is understood that the user of this Service Handbook must assume all risks of personal injury and/or damage to equipment while servicing equipment using the Service Handbook.

In order to correctly manage and maintain the copier, the Service Handbook must be read carefully before doing service work, both in the course of technical training and after training is completed. Also, keep the Service Handbook for future servicing. When it becomes impossible to read the description about safety and warning (due to illegibility or tearing), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In the Service Handbook, the three expressions ⚠ DANGER, ⚠ WARNING and ⚠ CAUTION are explicitly defined as follows:

⚠ **DANGER:**	**Actions having a high possibility of causing death or serious injury.**
⚠ **WARNING:**	**Actions having a possibility of causing death or serious injury.**
⚠ **CAUTION:**	**Actions having a possibility of causing light injury, medium difficulty or physical damage.**

When servicing, all work (disassembly, reassembly, adjustment, repair and maintenance) needs to be conducted with the utmost care.

IMPORTANT WARNING ITEMS

[1] UNAUTHORISED MODIFICATIONS

Konica copiers have gained a reputation for being very reliable products. This has been attained by a combination of outstanding design and a knowledgeable service force.

The design of a copier is extremely complex. During the design process, tolerance and safety factors are determined when considering the mechanical, electrical and electronic, as well as the physical dimensions of a copier. Any modification made by individuals not involved in the engineering process has the potential to reduce product performance and safety margins. For this reason, any modification not specifically authorised by Konica Corporation is strictly prohibited.

The following is a list of prohibited actions (not all-inclusive) that serves to demonstrate the intentions stated above.

⚠ CAUTION:

(1) Do not use an extension cord or any unauthorised power cord.
(2) Do not use any type of fuse that is not specified by Konica (unspecified fuses interfere with safety functions and may result in personal injury and/or fire damage).
(3) Do not use wire, paper clips, solder, etc., to replace or override any fuse (including temperature fuses).
(4) Do not remove any air filter (except when replacing filters).
(5) Do not override relay function (by wedging paper between relay contacts).
(6) Do not make any change which may interfere with built-in safety features (safety mechanism or safety circuit).
(7) Do not make any modification not mentioned in the Service Handbook.
(8) Do not use any unspecified replacement parts.

[2] GENERAL SAFETY GUIDELINES

This copier has been examined in accordance with safety regulation laws, prior to leaving the manufacturing facility. This is to protect copier users and service personnel from injury. As with any operating device, however, components will break down with everyday wear-and-tear. For this reason, it is important that a technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

⚠ CAUTION:

(1) Wear suitable clothing when operating the copier.
(2) Avoid injury.
(3) Before servicing, ensure that the copier is disconnected from the power source. (There is a risk of electric shock as current may still run through parts such as the paper feed unit, even after the power is turned OFF.)
(4) Be careful when adjusting or checking operations when the power is ON. (After taking the cover off, be careful when touching electrical parts or high-voltage parts as there is a risk of electric shock. Injury may also occur to fingers if caught between the drive gears and chain.)

The following checks, not all-inclusive, should be made during each service call.

⚠ CAUTION:

(1) Look for sharp edges, burrs and any damage on external cover and copier frame.
(2) Inspect all cover hinges for wear (loose or broken).
(3) Inspect cables for wear, frays or pinched areas.
(4) Ensure that the power cord insulation is not damaged. (That there are no exposed electrical conductors.)
(5) Ensure that the power cord is properly mounted to the frame by cord clamps.

⚠ **WARNING:**

(1) Ensure the machine is properly grounded.

(2) An incorrectly positioned earch cable may result in an explosion or electric shock. The earth cable should therefore not be connected to the following items:

a. Gas pipe

b. Lightning conductor

c. Earth cable for telephone line

d. Water service pipe made of resin or water service pipe and faucet which have not been approved for grounding by the Water Authority.

[3] SAFEGUARDS DURING SERVICE CALLS

⚠ **CAUTION:**

(1) Read the Service Handbook before making any modifications and carry out maintenance in the correct order. Do not make any adjustment not mentioned in the Service Handbook.

(2) If the power cord is damaged, replace it with one specified in the Service Handbook. (There is a risk of fire from a short circuit if a damaged cord is not replaced.)

(3) Do not place the power cord where it is likely to be stepped on or crushed. (There is a risk of fire if the power cord cable is damaged in this way.)

(4) When disconnecting connectors, do not pull the wiring (particularly on AC line wiring and high-voltage parts).

(5) Carefully remove all toner and dirt on electrical units or electrodes.

(6) After part replacement or repair work, route the wiring in such a way that it does not touch any burrs or sharp edges.

(7) Check that all screws, parts, wiring and connectors which were removed during maintenance are replaced in their original positions. (In particular, do not forget to insert connectors, power cord and screws.)

(8) When making periodic inspections, check whether or not the power cord is plugged in. (There is a risk of fire if the plug is not properly inserted.)

⚠ **WARNING:**

(1) Ensure the power is disconnected before disassembling/adjusting parts using a laser on the optics unit and unit parts.

(2) Do not remove the main body cover on the write unit as the laser may cause eye damage.

(3) Do not apply power if the write unit has slipped out of the correct position.

[4] WHEN USING SERVICE MATERIALS

⚠ **CAUTION:**

Care should be exercised when using isopropyl alcohol due to its flammability. When using alcohol to clean parts, observe the following precautions:

(1) Disconnect copier from the power source.

(2) Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with a rag and disposed of properly.

(3) Be sure that there is adequate ventilation.

(4) Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before applying power or installing covers.

⚠ **CAUTION:**

Although toner and developer are harmless, take care not to inhale them or get them in your eyes. If this happens, bathe eyes well with clear water and consult a doctor.

[5] ACTION TO TAKE IN THE EVENT OF A SERIOUS ACCIDENT

(1) When an accident occurs, the sales company or dealer that was first notified of the accident must take necessary emergency action to assist the injured person and also prevent any further damage or injury.

(2) If a customer notifies you of a serious accident, promptly check the situation regarding damage and injury, etc., and report to KBJ. Upon receiving this report, KBJ must notify Konica.

(3) In order to determine the cause of the accident, preserve the site of the accident and also the machine itself, witness the investigation and follow any instructions from KBJ or Konica.

(4) In order to report or take the appropriate action for a serious accident, follow the Preventive Program Regulation for an Electrical Parts Accident.

[6] SUMMARY

(1) The operability of a copier and, more importantly, the safety of those who operate or service it, are directly dependent upon the conscientious effort of each and every technician. Each copier must be thoroughly inspected with respect to safety concerns. When attending a service call, use good judgement to identify safety hazards or potential safety hazards that may be present, and take appropriate action.

1

MAIN BODY

1. MAIN BODY

PRODUCT SPECIFICATIONS 1-1
[1] Type 1-1
[2] Function 1-1
[3] Particulars of Machine 1-1
[4] Maintenance 1-1
[5] Machine Operating Environment 1-1
CENTRE CROSS-SECTION 1-2
DRIVE SECTION 1-3
PAPER FEED UNIT 1-4
[1] Construction 1-4
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[3] Disassembly and Assembly 1-5
[4] Paper Feed and No-Paper Detection Control 1-7
[5] Tray-Up Control 1-9
[6] Paper Size Detection Control 1-10

This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disasembly and assembly work:

1. Make sure that the power cord is unplugged before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them into the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

PRODUCT SPECIFICATIONS

[1] Type

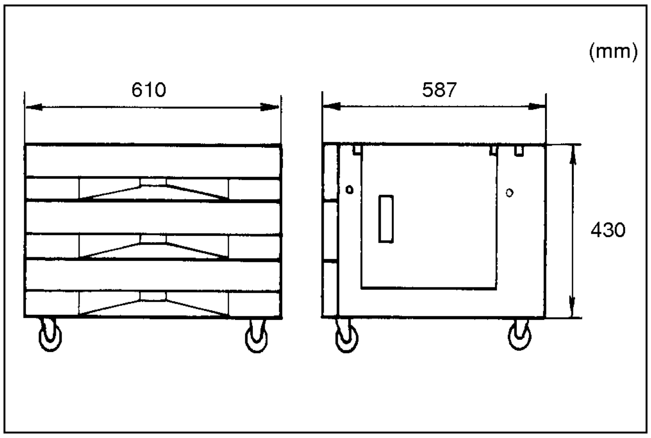
Type:	Paper feed tray (front loading)

[2] Function

Paper size:	A3/B4/A4/A4R/B5/B5R/A5/8.5 x 11/ 8.5 x 11R/8.5 x 14
Paper type:	60 g/m^2 to 90 g/m^2 high-quality paper
Maximum paper storage:	Three stacked trays (500 sheets x 3, 80 g/m^2)

[3] Particulars of Machine

Power:	24/5 V DC (supplied from copier main body)
Power consumption:	Maximum 40 VA
Weight:	Approx. 22 kg
Machine dimensions:	



[4] Maintenance

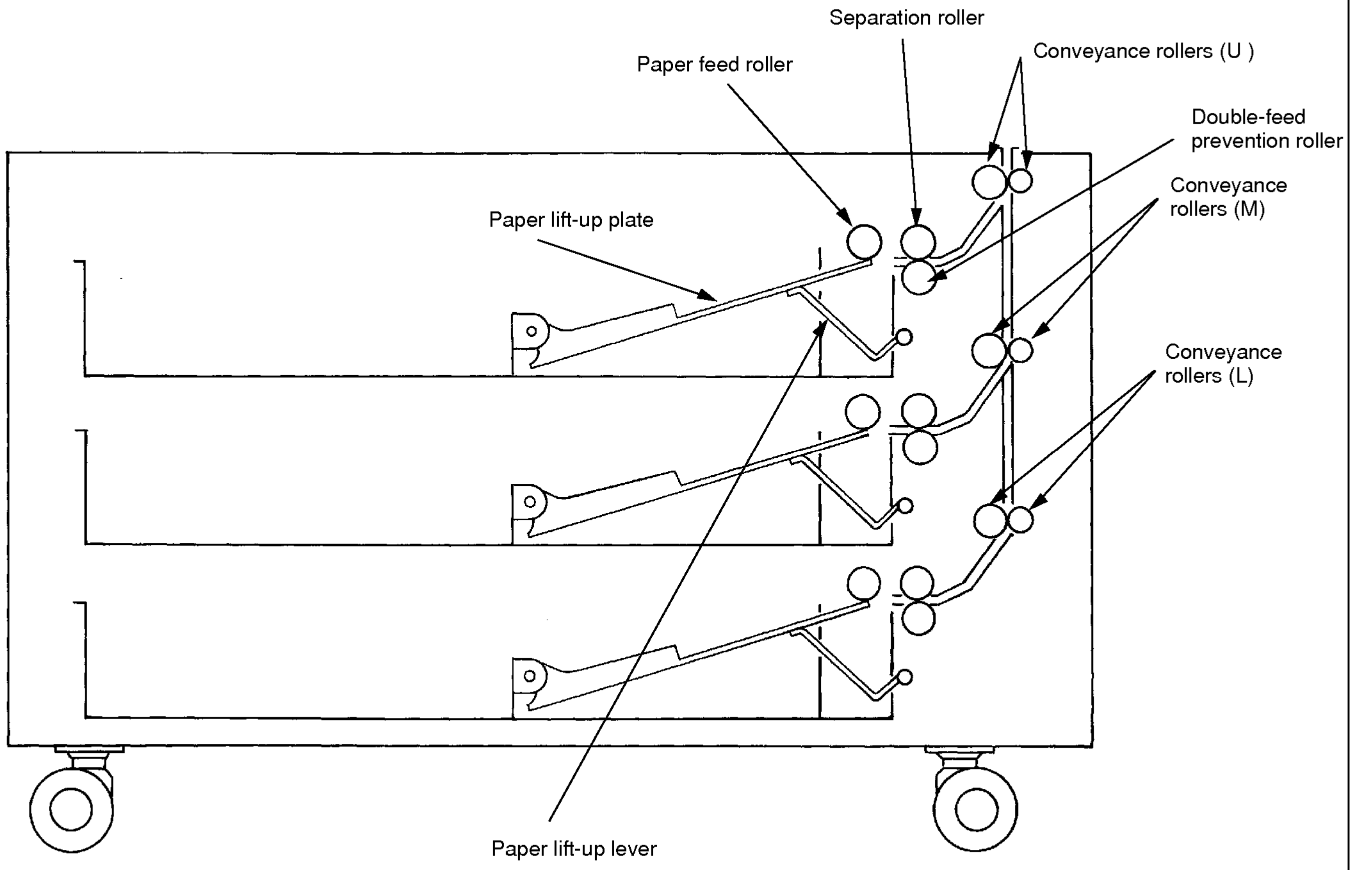
Maintenance:	Based on copier main body
Machine life:	Based on copier main body

[5] Machine Operating Environment

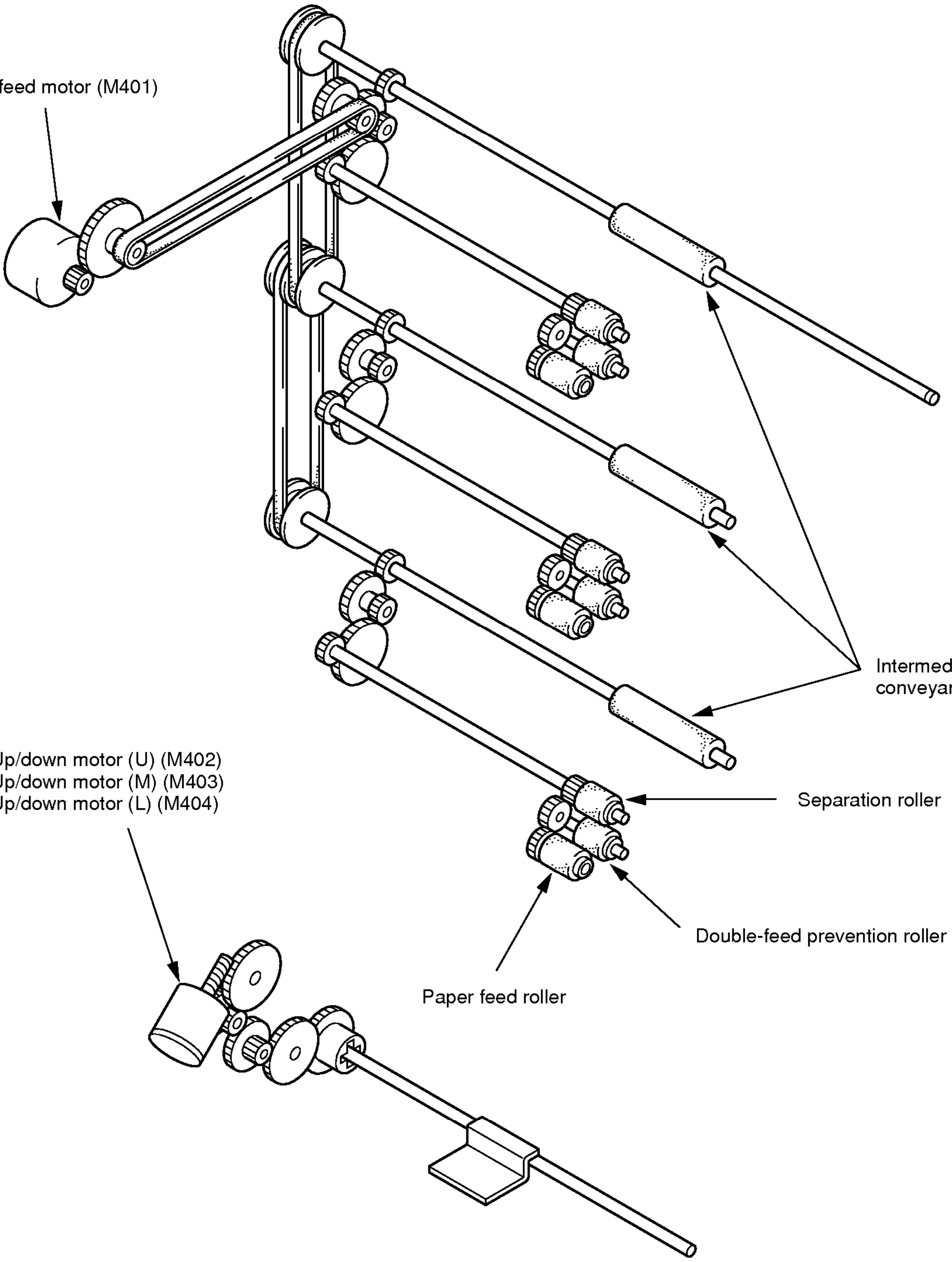
Temperature:	10°C to 33°C
Humidity:	20% to 80% RH (no condensation)

Note: These specifications are subject to change without notice.

CENTRE CROSS-SECTION

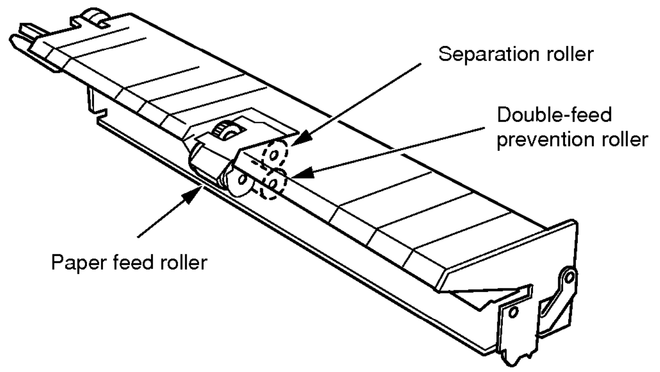

Separation roller
Paper feed roller
Conveyance rollers (U)
Double-feed prevention roller
Paper lift-up plate
Conveyance rollers (M)
Conveyance rollers (L)
Paper lift-up lever

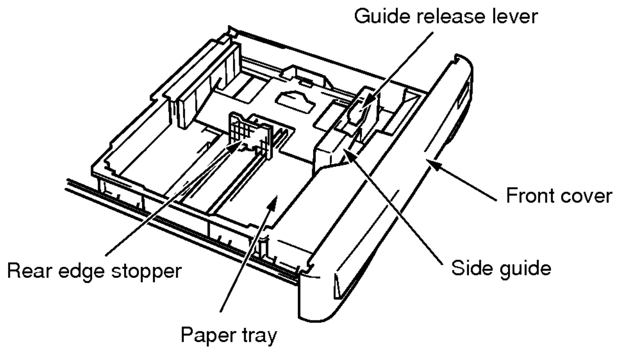
DRIVE SECTION

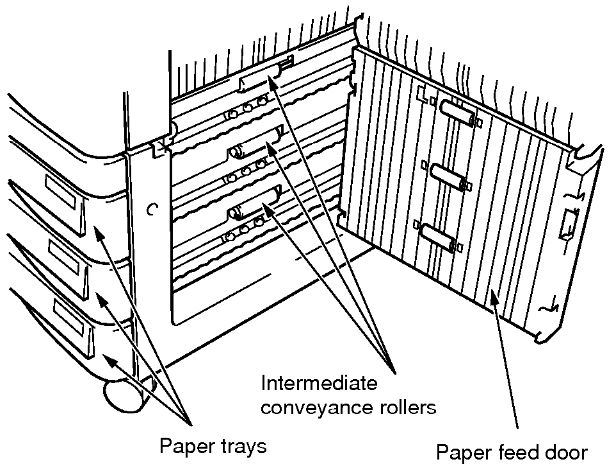

Paper feed motor (M401)
Intermediate conveyance rollers
Up/down motor (U) (M402)
Up/down motor (M) (M403)
Up/down motor (L) (M404)
Separation roller
Double-feed prevention roller
Paper feed roller

PAPER FEED UNIT

[1] Construction


Separation roller
Double-feed prevention roller
Paper feed roller


Guide release lever
Front cover
Side guide
Rear edge stopper
Paper tray


Intermediate conveyance rollers
Paper trays
Paper feed door

[2] Mechanism

Mechanism	Method
Paper feed	Paper feed roller
Paper lifting	Paper lift-up plate
Double-feed prevention	Torque limiter
1st paper feed	Separation roller, paper feed solenoid
Intermediate conveyance	Intermediate conveyance roller
Paper jam handling	Double-feed prevention roller pressure release
No-paper detection	Photosensor
Paper size detection	Tact switch
Paper conveyance	Roller conveyance
Conveyance drive	Timing belt

[3] Disassembly and Reassembly

⚠CAUTION: Ensure the power cord is unplugged from the socket.

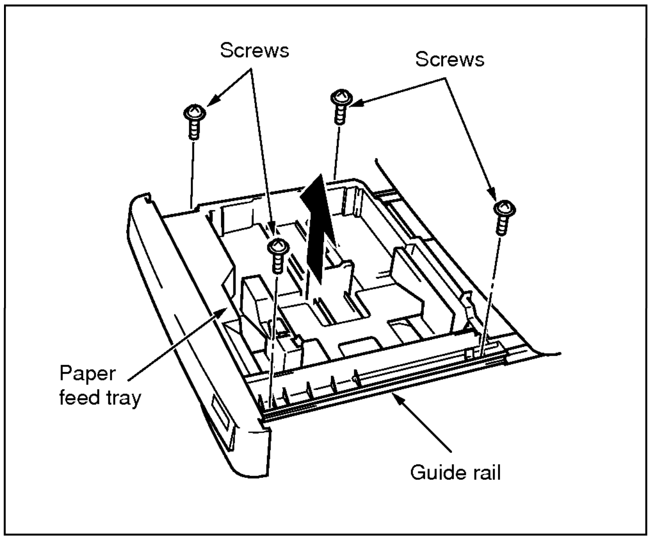
1. Removing and reinstalling the paper feed tray

a. Procedure

(1) Pull out the paper feed tray and remove the two screws on the left and the two screws on the right.

(2) Remove the paper feed tray from the guide rail.

(3) To reinstall, reverse the procedure above.

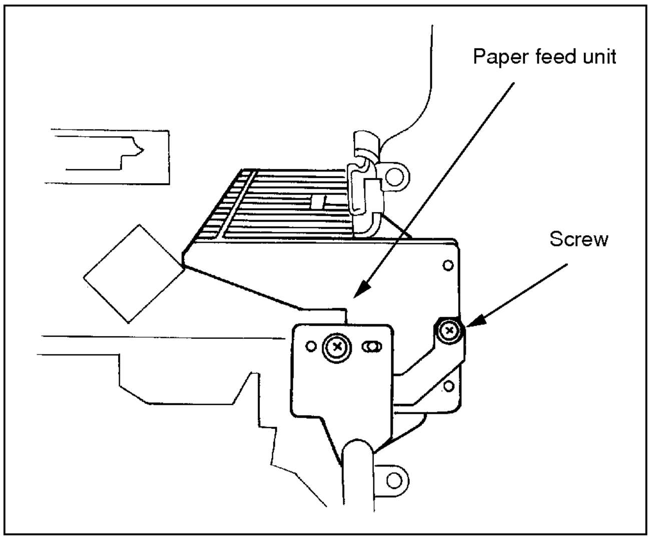

Screws
Screws
Paper feed tray
Guide rail

2. Removing and reinstalling the paper feed unit

a. Procedure

(1) Slide out the paper tray towards you.

(2) Remove the screw, then remove the paper feed unit towards you.


Paper feed unit
Screw

(3) Reinstall the paper feed unit by reversing the procedure above.

⚠CAUTION: After installing the paper feed unit, take a copy to check that the copier is operating correctly. There is a possibility the paper will not feed if the rocking gear and paper feed solenoid are not in their correct positions.

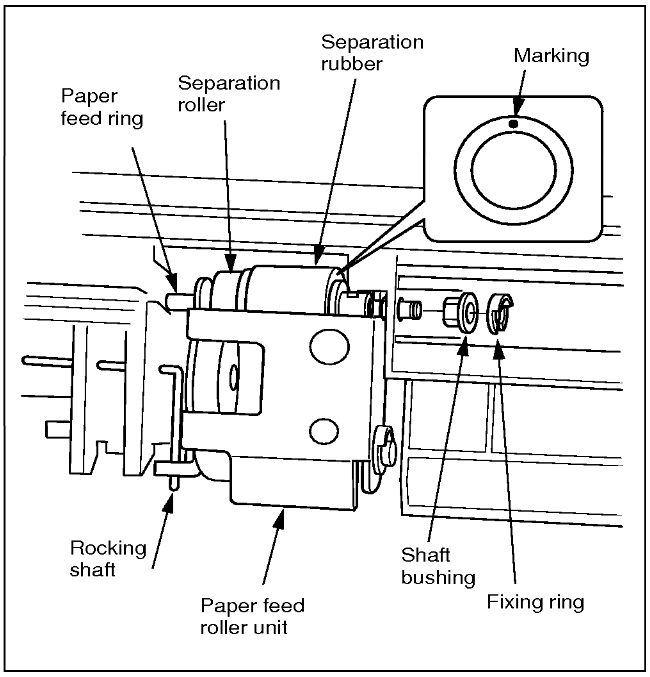
3. Replacing the separation rubber and the paper supply rubber

a. Procedure

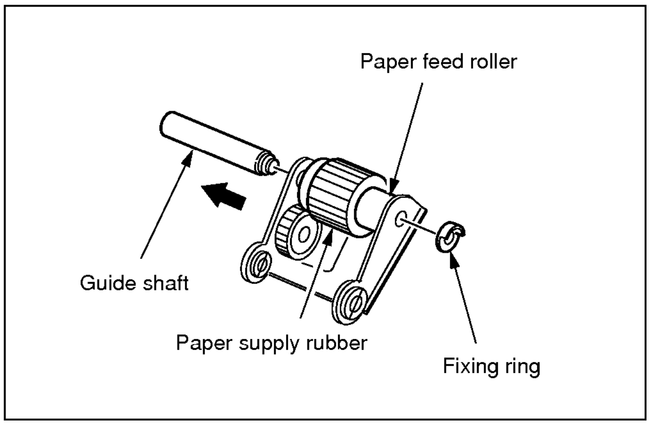
(1) Remove the paper feed unit.

(2) Remove the fixing ring and shaft holder.

(3) While pulling out the paper feed shaft, remove the feed roller from the paper feed roller unit.


Separation rubber
Marking
Separation roller
Paper feed ring
Rocking shaft
Paper feed roller unit
Shaft bushing
Fixing ring

(4) Remove the fixing ring and, pulling the guide shaft in the direction of the arrow, remove the paper feed roller.


Paper feed roller
Guide shaft
Paper supply rubber
Fixing ring

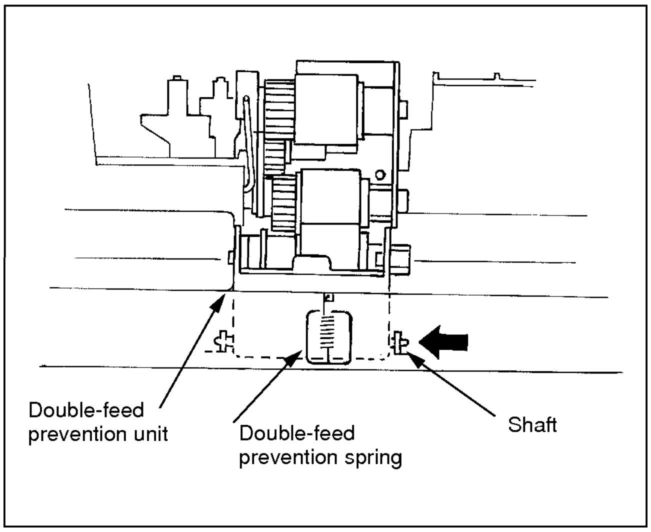
(5) Remove the separation rubber from the separation roller.
(6) Remove the paper supply rubber from the paper feed roller.
(7) To reinstall, reverse the above procedure.

⚠CAUTION: **Make sure each roller rubber is installed in the correct direction. Reinstall so that the rocking shaft fits inside the paper feed roller unit.**

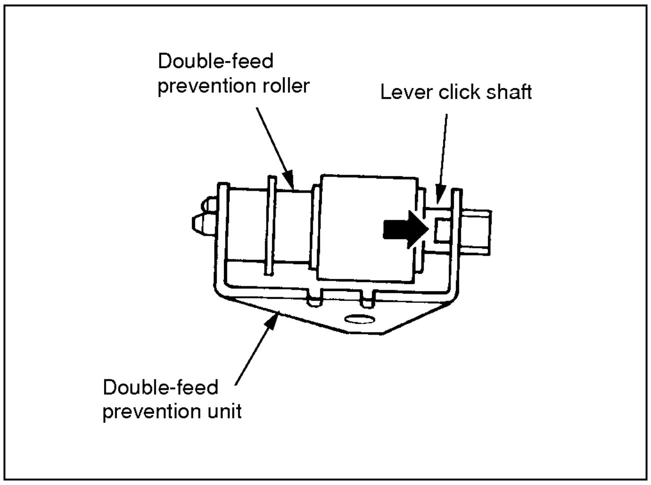
4. Removing and reinstalling the double-feed prevention roller

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the double-feed pressure spring.
(3) While pressing the shaft in the direction of the arrow, remove the double-feed prevention unit from the paper feed unit.


Double-feed prevention unit
Double-feed prevention spring
Shaft

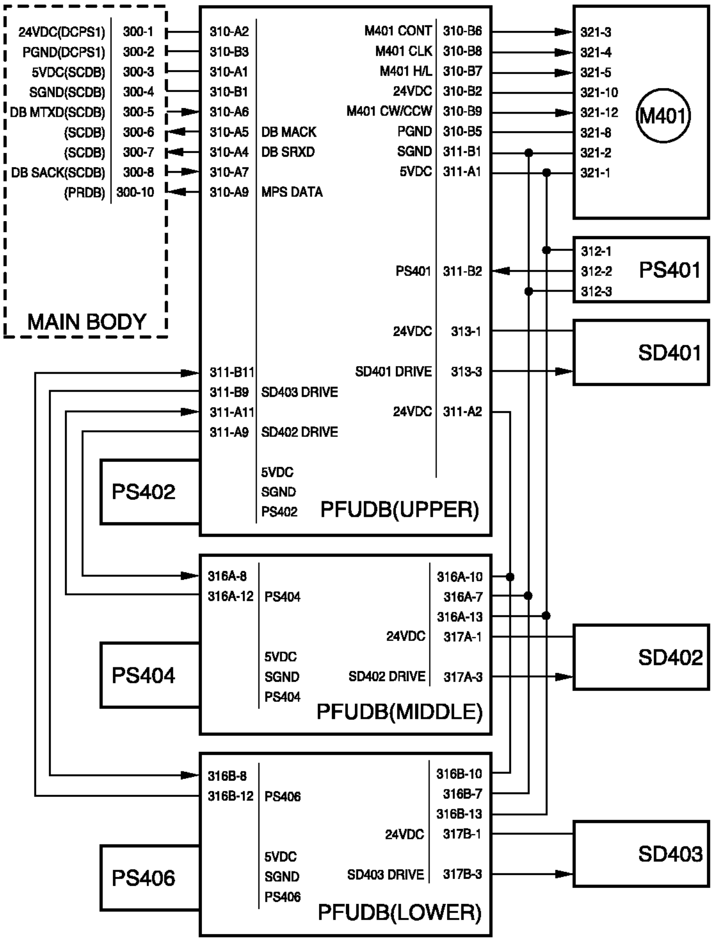
(4) While pressing the protrusion on the lever click shaft, pull the shaft out and remove the double-feed prevention roller.


Double-feed prevention roller
Lever click shaft
Double-feed prevention unit

(5) Reinstall the double-feed prevention roller by reversing the procedure above.

⚠CAUTION: **After reinstallation, make sure that the double-feed pressure spring moves the double-feed prevention roller smoothly.**

[4] Paper Feed and No-Paper Detection Control


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
(PRDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
300-10
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
310-A9
DB MACK
DB SRXD
MPS DATA
M401 CONT
M401 CLK
M401 H/L
24VDC
M401 CW/CCW
PGND
SGND
5VDC
310-B6
310-B8
310-B7
310-B2
310-B9
310-B5
311-B1
311-A1
321-3
321-4
321-5
321-10
321-12
321-8
321-2
321-1
M401
PS401
311-B2
312-1
312-2
312-3
PS401
24VDC
313-1
SD401 DRIVE
313-3
SD401
24VDC
311-A2
311-B11
311-B9
311-A11
311-A9
SD403 DRIVE
SD402 DRIVE
5VDC
SGND
PS402
PS402
PFUDB(UPPER)
316A-8
316A-12
PS404
316A-10
316A-7
316A-13
24VDC
317A-1
SD402 DRIVE
317A-3
SD402
PS404
5VDC
SGND
PS404
PFUDB(MIDDLE)
316B-8
316B-12
PS406
316B-10
316B-7
316B-13
24VDC
317B-1
SD403 DRIVE
317B-3
SD403
PS406
5VDC
SGND
PS406
PFUDB(LOWER)

Paper is fed by the drive force of M401 (paper feed) to each paper feed roller and each feed roller through SD401 (paper feed solenoid (U)), SD402 (paper feed solenoid (M)) and SD403 (paper feed solenoid (L)).

The M401 and SD401 are driven by the PFUDB (U) (PFU drive board (U)) and controlled by the PFUDB (U) in the main body.

The SD402 is driven by the PFUDB (M) (PFU drive board (M)), the SD403 is driven by the PFUDB (L) (PFU drive board (L)) and controlled by the PFUDB (U).

1. Operation

a. Operation when copying

Paper feed for the first sheet starts a specified time after the start button is turned ON and paper feed operation starts when the M401 (paper feed) and SD401 (SD402 or SD403) turn ON.

The M401 turns OFF a specified time after the PS401 (passage-detecting sensor) detects the leading edge of the page. Each solenoid turns OFF a specified time after being turned ON.

Paper feed for the second and subsequent sheets starts a specified time after the SD401 (SD402 or SD403) turns ON every time paper is fed.

When the paper tray is empty, PS402 (no-paper detecting sensor (U)), PS404 (no-paper detecting sensor (M)) or PS406 (no-paper detecting sensor (L)) changes to a high signal (H), to inform the paper feed drive board that there is no paper in the tray.

2. Signals

a. Input signals

(1) PS401 (PS401 → PFUDB (U))
This signal is output when PS401 detects paper passing through the paper conveyance section. It changes to an [H] level when paper is detected.

(2) PS402 (PS402 → PFUDB (U))
This signal is a no-paper detecting signal for the paper tray (U).
[H]: When there is paper in the tray
[L]: When there is no paper in the tray

(3) PS404 (PS404 → PFUDB (M) → PFUDB (U))
This signal is a no-paper detecting signal for the paper tray (M).
[H]: When there is paper in the tray
[L]: When there is no paper in the tray

(4) PS406 (PS406 → PFUDB (L) → PFUDB (U))
This signal is a no-paper detecting signal for the paper tray (M).
[H]: When there is paper in the tray
[L]: When there is no paper in the tray

(5) DB MTXD (MAIN BODY → PFUDB (U))
The serial data line informs DB of main body operation

(6) DB SACK (MAIN BODY → PFUDB (U))
This signal is the transmission approved signal from the main body to the DB.

b. Output signals

(1) M401 CONT (PFUDB (U) → M401)
This is the ON/OFF control signal for M401 (paper feed).
[H]: M401 OFF
[L]: M401 ON

(2) M401 CLK (PFUDB (U) → M401)
This is the reference clock signal for M401 rotation speed control.

(3) M401 H/L (PFUDB (U) → M401)
This is the signal for rotation speed control for M401.
[H]: Low speed
[L]: High speed

(4) M401 CW/CCW (PFUDB (U) → M401)
This is the signal for rotation direction control for M401.
[H]: Reverse direction
[L]: Forward direction

(5) SD401 DRIVE (PFUDB (U) → SD401)
This is the ON/OFF control signal for SD401.
[H]: OFF
[L]: ON

(6) SD402 DRIVE (PFUDB (U) → PFUDB (M) → SD402)
This is the ON/OFF control signal for SD402.
[H]: OFF
[L]: ON

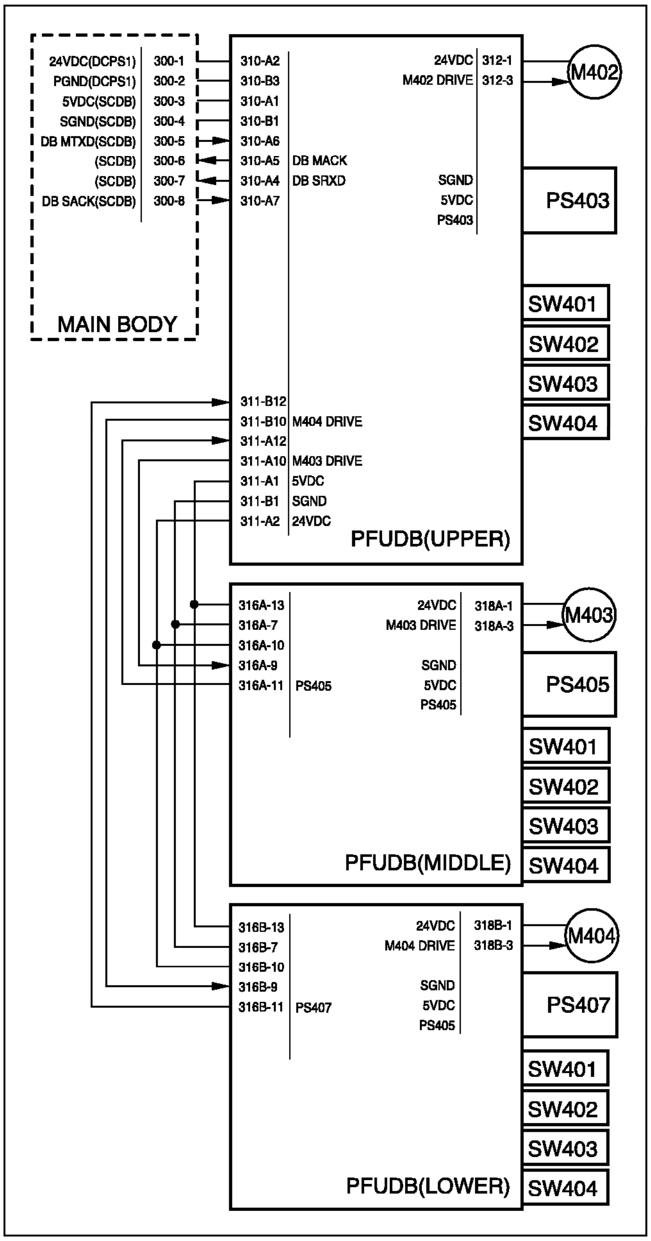
(7) SD403 DRIVE (PFUDB (U) → PFUDB (L) → SD403)
This is the ON/OFF control signal for SD403.
[H]: OFF
[L]: ON

(8) DB SRXD (PFUDB (U) → MAIN BODY)
The serial data line informs main body of DB operation.

(9) DB MACK (PFUDB (U) → MAIN BODY)
This signal is the transmission approved signal from the main body to the DB.

(10) MPS DATA (PFUDB (U) → MAIN BODY)
This signal feeds the PS401 detecting signal back to the main body.

[5] Tray Up Control


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
DB MACK
DB SRXD
24VDC
M402 DRIVE
312-1
312-3
M402
SGND
5VDC
PS403
PS403
SW401
SW402
SW403
SW404
311-B12
311-B10
311-A12
311-A10
311-A1
311-B1
311-A2
M404 DRIVE
M403 DRIVE
5VDC
SGND
24VDC
PFUDB(UPPER)
316A-13
316A-7
316A-10
316A-9
316A-11
PS405
24VDC
M403 DRIVE
318A-1
318A-3
M403
SGND
5VDC
PS405
PS405
SW401
SW402
SW403
SW404
PFUDB(MIDDLE)
316B-13
316B-7
316B-10
316B-9
316B-11
PS407
24VDC
M404 DRIVE
318B-1
318B-3
M404
SGND
5VDC
PS405
PS407
SW401
SW402
SW403
SW404
PFUDB(LOWER)

The paper tray is raised by transmitting the M402 (lift-up motor (U)), M403 (lift-up motor (M)), or M404 (lift-up motor (L)) driving force to the paper lifting lever.

The M402 is driven by PFUDB (U) (PFU drive board (U)) and controlled by the PFUDB (U) in the main body.

The M403 is driven by the PFUDB (M) (PFU drive board (M)), the M404 is driven by the PFUDB (L) (PFU drive board (L)) and controlled by the PFUDB (U) in the main body.

1. Operation

The tray is raised when each motor turns ON after the SW401, 402, 403 or 404 (paper size-detecting switches) turns ON.

When PS403 (upper limit-detecting sensor (U)), PS405 (upper limit-detecting sensor (M)), or PS407 (upper limit-detecting sensor (L)) detects the upper limit of the paper in the tray and turns ON, the lift-up motor turns OFF and the tray stops.

When paper is fed, each upper limit-detecting sensor turns OFF and the tray is raised when the lift-up motor turns ON.

The paper tray is lowered mechanically.

2. Signals

a. Input signals

(1) PS403 (PS403 → PFUDB (U))
Upper limit-detecting signal on upper tray.
There is an [H] signal when the upper limit of paper is detected.

(2) PS405 (PS405 → PFUDB (M) → PFUDB (U))
Upper limit-detecting signal on middle tray.
There is an [H] signal when the upper limit of paper is detected.

(3) PS407 (PS407 → PFUDB (L) → PFUDB (U))
Upper limit-detecting signal on lower tray.
There is an [H] signal when the upper limit of paper is detected.

(4) SIZE A, B, C, D (SW401~404 → PFUDB (U))
Paper size-detecting sensor on upper tray.

(5) SIZE A, B, C, D (SW401~404 → PFUDB (M) → PFUDB (U))
Paper size-detecting sensor on middle tray.

(6) SIZE A, B, C, D (SW401~404 → PFUDB (L) → PFUDB (U))
Paper size-detecting sensor on lower tray.

(7) DB MTXD (MAIN BODY → PFUDB (U))
The serial data line informs DB of main body operation.

(8) DB SACK (MAIN BODY → PFUDB (U))
This signal is the transmission approved signal from the main body to the DB.

b. Output signals

(1) M402 DRIVE (PFUDB (U) → M402)
This is the ON/OFF control signal for M402.
[H]: OFF
[L]: ON

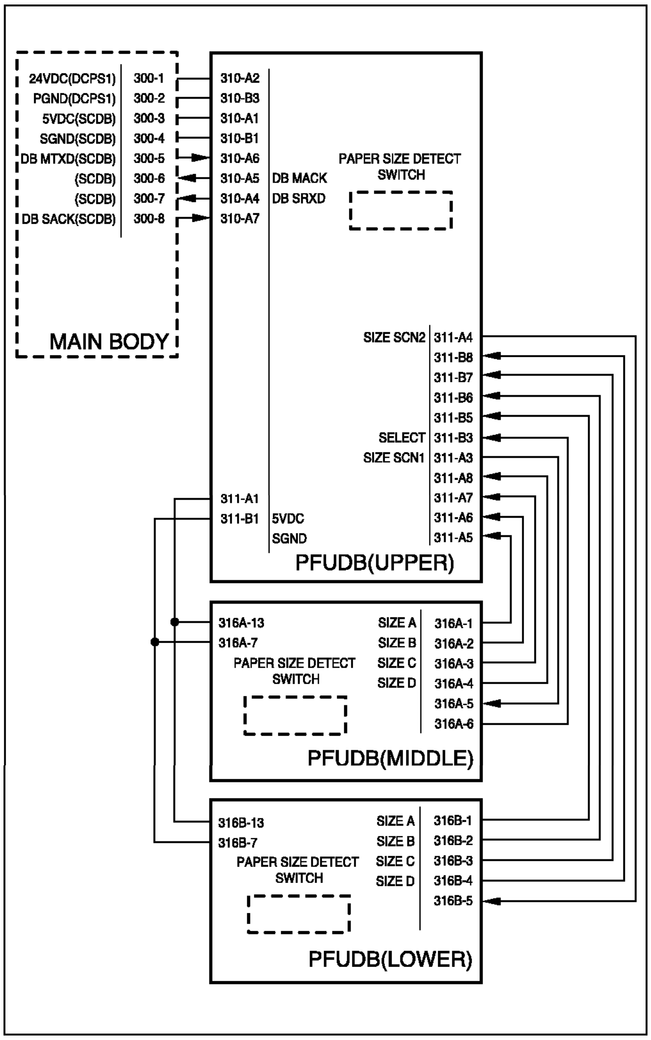
(2) M403 DRIVE (PFUDB (U) → PFUDB (M) → M403)
This is the ON/OFF control signal for M403.
[H]: OFF
[L]: ON

(3) M404 DRIVE (PFUDB (U) → PFUDB (L) → M404)
This is the ON/OFF control signal for M404.
[H]: OFF
[L]: ON

(4) DB MACK (PFUDB (U) → MAIN BODY)
This signal is the transmission approved signal from the DB to the main body.

(5) DB SRXD (PFUDB (U) → MAIN BODY)
The serial data line informs the main body of DB operation.

[6] Paper Size Detection Control



24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
DB MACK
DB SRXD
PAPER SIZE DETECT SWITCH
SIZE SCN2
SELECT
SIZE SCN1
311-A4
311-B8
311-B7
311-B6
311-B5
311-B3
311-A3
311-A8
311-A7
311-A6
311-A5
311-A1
311-B1
5VDC
SGND
PFUDB(UPPER)
316A-13
316A-7
PAPER SIZE DETECT SWITCH
SIZE A
SIZE B
SIZE C
SIZE D
316A-1
316A-2
316A-3
316A-4
316A-5
316A-6
PFUDB(MIDDLE)
316B-13
316B-7
PAPER SIZE DETECT SWITCH
SIZE A
SIZE B
SIZE C
SIZE D
316B-1
316B-2
316B-3
316B-4
316B-5
PFUDB(LOWER)

Each drive board, PFUDB (U) (PFU drive board (U)), PFUDB (M) (PFU drive board (M)) and PFUDB (L) (PFU drive board (L)) is fitted with a series of tact switches for detecting paper size. This informs the main body of the paper size in each tray, the upper tray directly through the main body and the middle and lower trays through the PFUDB.

1. Operation

Each tray has a series of actuators that are operated by the paper guides. When each tray is inserted, these projections turn the tact switches on each drive board OFF and ON. The PFUDB (PFU) determines the paper size of the PFU from the ON/OFF combinations.

2. Signals

a. Input signals

(1) SIZE A, B, C, D (PFUDB (M) → PFUDB (U))
Paper size-detecting signal for middle tray. Paper size is detected according to particular ON/OFF combinations.

(2) SIZE A, B, C, D (PFUDB (L) → PFUDB (U))
Paper size-detecting signal for lower tray. Paper size is detected according to particular ON/OFF combinations.

(3) DB MTXD (MAIN BODY → PFUDB (U))
The serial data line informs DB of main body operation.

(4) DB SACK (MAIN BODY → PFUDB (U))
This signal is the transmission approved signal from the main body to the DB.

b. Output signals

(1) SIZE SCN 1 (PFUDB (U) → PFUDB (U))
Paper size-detecting scan signal for middle tray.

(2) SIZE SCN 2 (PFUDB (U) → PFUDB (L))
Paper size-detecting scan signal for lower tray.

(3) DB MACK (PFUDB (U) → MAIN BODY)
This signal is the transmission approved signal from the DB to the main body.

(4) DB SRXD (PFUDB (U) → MAIN BODY)
The serial data line informs the main body of DB operation.

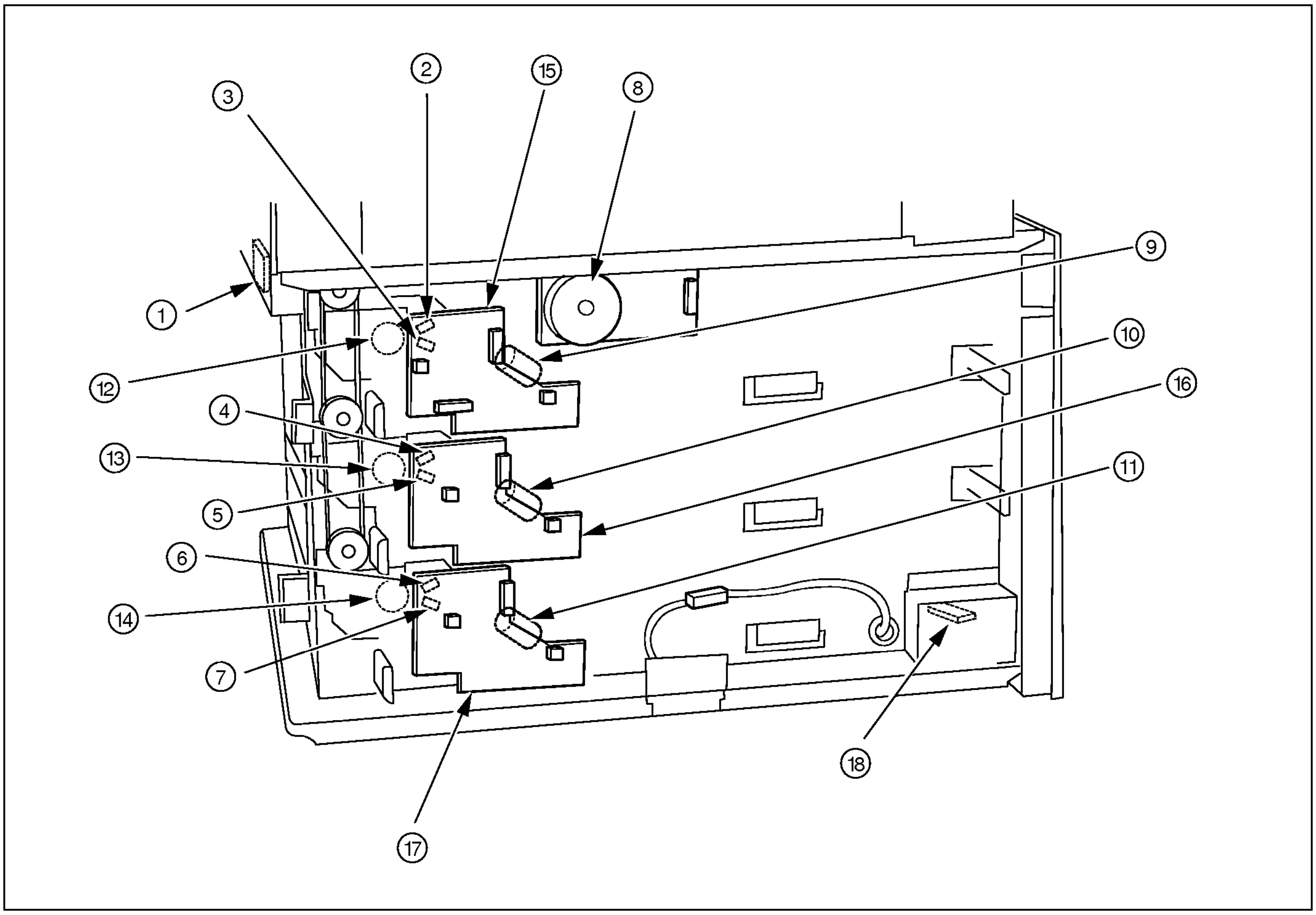
2

ELECTRICAL PARTS LIST

2. ELECTRICAL PARTS LIST

ELECTRICAL PARTS LAYOUT DIAGRAM . 2-1
CONNECTOR LAYOUT DIAGRAM 2-2
WIRING DIAGRAM 2-3
PFU DRIVE BOARD (UPPER) CIRCUIT DIAGRAM 2-4

ELECTRICAL PARTS LAYOUT DIAGRAM



[1] Switches and Sensors

①	PS401	Passage-detecting sensor
②	PS402	No paper-detecting sensor (U)
③	PS403	Upper limit-detecting sensor (U)
④	PS404	No paper-detecting sensor (M)
⑤	PS405	Upper limit-detecting sensor (M)
⑥	PS406	No paper-detecting sensor (L)
⑦	PS407	Upper limit-detecting sensor (L)

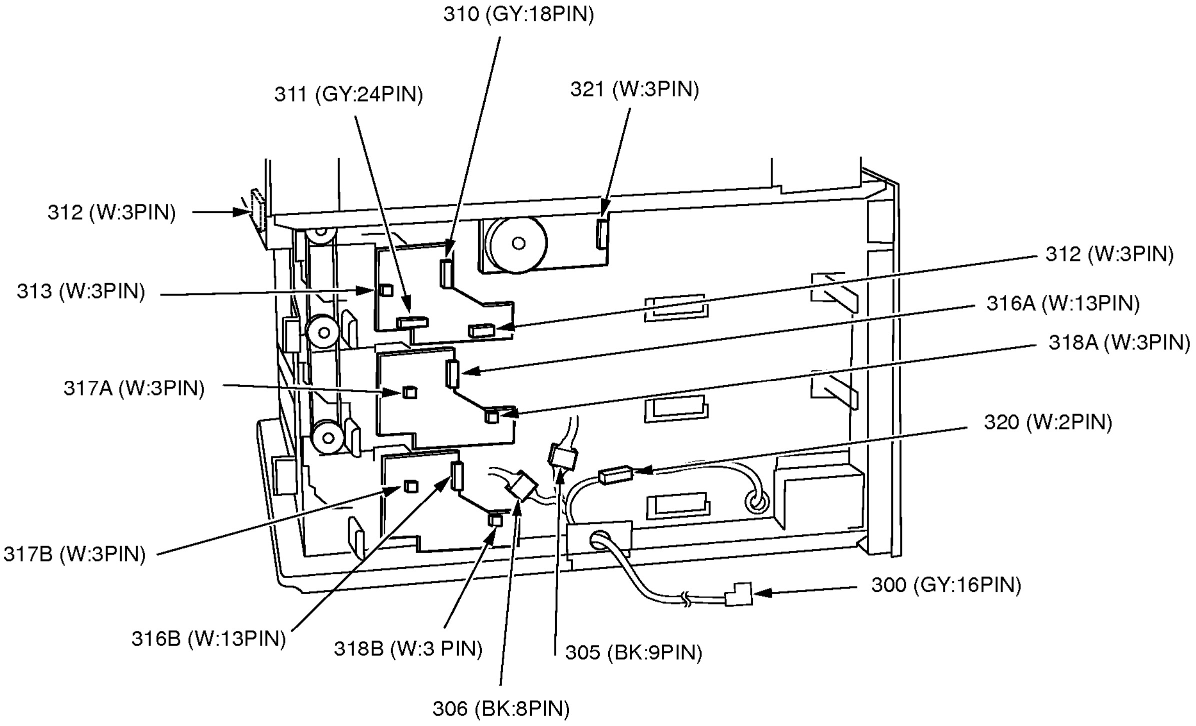
[2] Loads

⑧	M401	Paper feed motor
⑨	M402	Lift-up motor (U)
⑩	M403	Lift-up motor (M)
⑪	M404	Lift-up motor (L)
⑫	SD401	Paper feed solenoid (U)
⑬	SD402	Paper feed solenoid (M)
⑭	SD403	Paper feed solenoid (L)

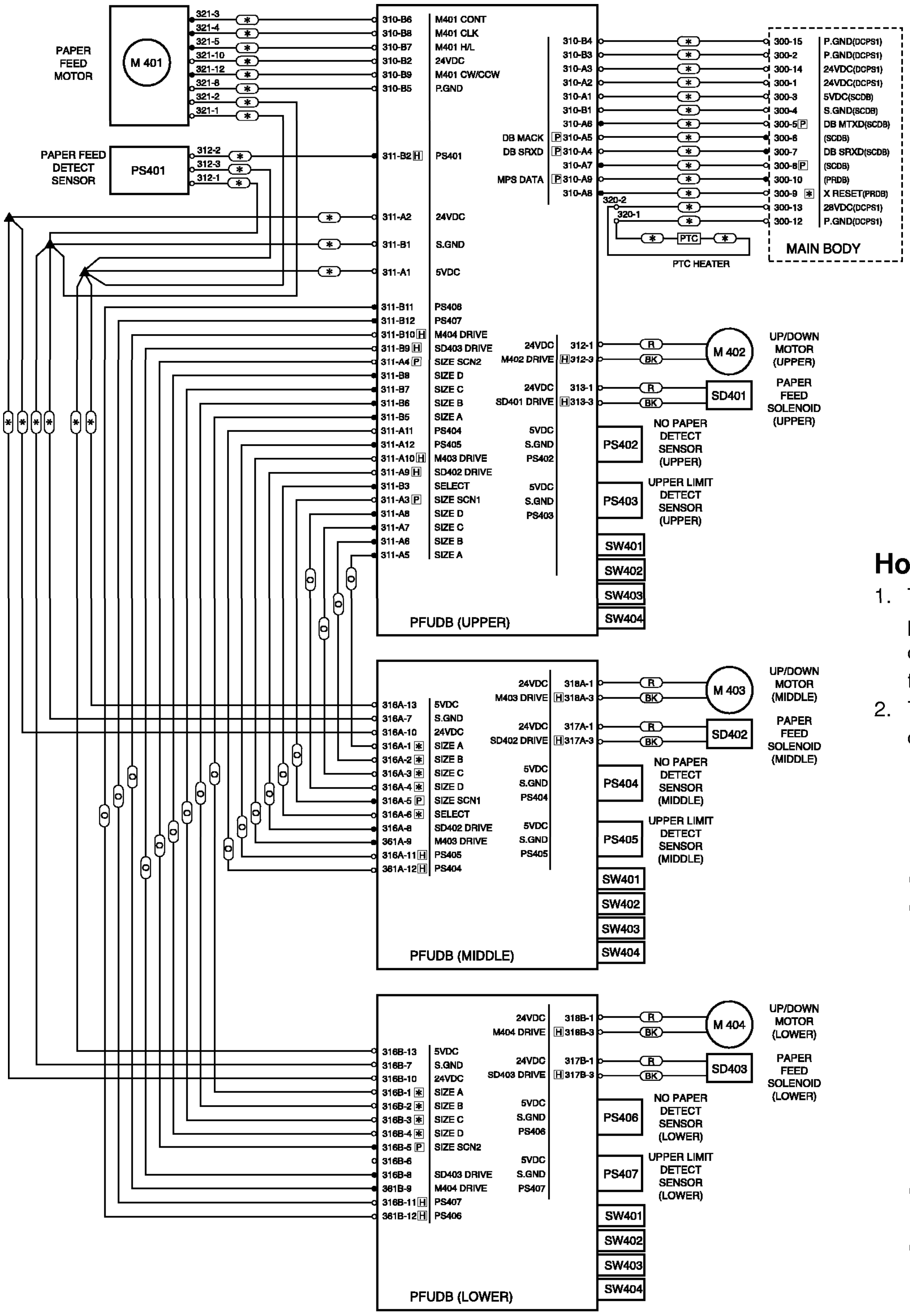
[3] Boards and Others

⑮	PFUDB (U)	PFU drive board (U)
⑯	PFUDB (M)	PFU drive board (M)
⑰	PFUDB (L)	PFU drive board (L)
⑱	PTC	Internal heater

CONNECTOR LAYOUT DIAGRAM

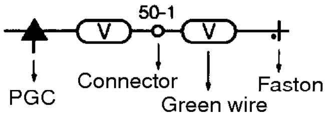

310 (GY:18PIN)
311 (GY:24PIN)
321 (W:3PIN)
312 (W:3PIN)
313 (W:3PIN)
312 (W:3PIN)
316A (W:13PIN)
318A (W:3PIN)
317A (W:3PIN)
320 (W:2PIN)
317B (W:3PIN)
300 (GY:16PIN)
316B (W:13PIN)
318B (W:3 PIN)
305 (BK:9PIN)
306 (BK:8PIN)

WIRING DIAGRAM


PAPER FEED MOTOR
M 401
PAPER FEED DETECT SENSOR
PS401
M401 CONT
M401 CLK
M401 H/L
24VDC
M401 CW/CCW
P.GND
DB MACK
DB SRXD
MPS DATA
P.GND(DCPS1)
24VDC(DCPS1)
5VDC(SCDB)
S.GND(SCDB)
DB MTXD(SCDB)
DB SRXD(SCDB)
X RESET(PRDB)
28VDC(DCPS1)
MAIN BODY
PTC
PTC HEATER
UP/DOWN MOTOR (UPPER)
M 402
PAPER FEED SOLENOID (UPPER)
SD401
NO PAPER DETECT SENSOR (UPPER)
PS402
UPPER LIMIT DETECT SENSOR (UPPER)
PS403
SW401
SW402
SW403
SW404
PFUDB (UPPER)
UP/DOWN MOTOR (MIDDLE)
M 403
PAPER FEED SOLENOID (MIDDLE)
SD402
NO PAPER DETECT SENSOR (MIDDLE)
PS404
UPPER LIMIT DETECT SENSOR (MIDDLE)
PS405
PFUDB (MIDDLE)
UP/DOWN MOTOR (LOWER)
M 404
PAPER FEED SOLENOID (LOWER)
SD403
NO PAPER DETECT SENSOR (LOWER)
PS406
UPPER LIMIT DETECT SENSOR (LOWER)
PS407
PFUDB (LOWER)

How to read the diagram

1. The signals shown reflect levels present under normal idling conditions with the main switch turned ON.
2. The symbols used in this diagram are explained below.


50-1
V
V
PGC
Connector
Green wire
Faston

(1) [Explanation of symbols]:

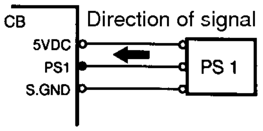
(2) [Colour codes]:

BN: Brown	B: Blue
R: Red	V: Violet
O: Orange	GY: Grey
Y: Yellow	W: White
GN: Green	BK: Black
LB: Light blue	P: Pink

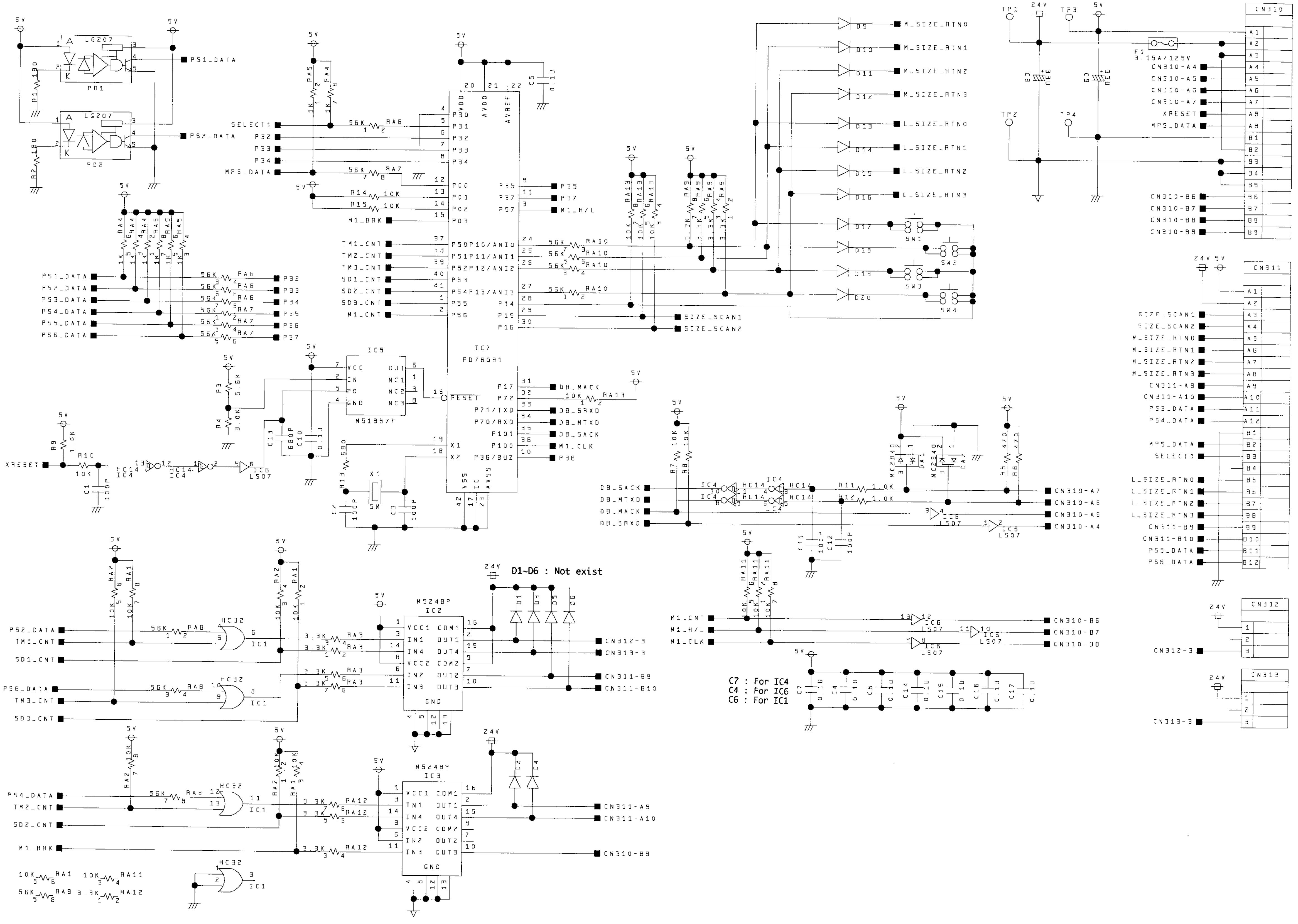
For example, "Y/GN" represents a striped pattern of yellow and green.

(3) (RC) represents a ribbon cable.

(4) Direction of signal flow:
A black dot (●) represents the destination of a signal from a connector (❍).


CB
Direction of signal
5VDC
PS1
S.GND
PS 1

PFU DRIVE BOARD (U) CIRCUIT DIAGRAM


IC7
PD78081
IC5
M51957F
IC2
M5248P
IC3
M5248P
HC32
IC1
HC14
IC4
LS07
IC6
LG207
PD1
PD2
CN310
CN311
CN312
CN313
PS1_DATA
PS2_DATA
PS3_DATA
PS4_DATA
PS5_DATA
PS6_DATA
SELECT1
MPS_DATA
XRESET
M1_BRK
M1_CNT
M1_H/L
M1_CLK
TM1_CNT
TM2_CNT
TM3_CNT
SD1_CNT
SD2_CNT
SD3_CNT
DB_SACK
DB_MTXD
DB_MACK
DB_SRXD
SIZE_SCAN1
SIZE_SCAN2
M_SIZE_RTN0
M_SIZE_RTN1
M_SIZE_RTN2
M_SIZE_RTN3
L_SIZE_RTN0
L_SIZE_RTN1
L_SIZE_RTN2
L_SIZE_RTN3
SW1
SW2
SW3
SW4
F1
3.15A/125V
5V
24V
D1~D6 : Not exist
C7 : For IC4
C4 : For IC6
C6 : For IC1

Note: 1. The circuit diagram of the PFU drive board on the DB-608 is the same as the DB-208.

2. The circuit diagram of the DB-608 PFU drive board (middle/lower) and the PFU drive board (LCT) are the same as the circuit diagram of the paper-detecting board on the main body. (Refer to paper-detecting board on main body.)

Konica

DB-608

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to C-1 in Main Body

1. MAIN BODY

2. ELECTRICAL PARTS LIST

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

SAFETY AND IMPORTANT WARNING ITEMS

Carefully read the Safety and Important Warning Items described below and understand them before doing service work.

IMPORTANT NOTICE

Konica Corporation strongly recommends that all servicing be performed only by Konica-trained service technicians. This is because of the possible hazards to an inexperienced person servicing equipment, as well as the risk of damage to equipment.

Changes may have been made to this equipment to improve its performance after this Service Manual was printed. Accordingly, Konica Corporation makes no representations or warranties, either expressed or implied, that the information contained in this Service Handbook is complete or accurate. It is understood that the user of the Service Handbook must assume all risks of personal injury and/or damage to equipment while servicing equipment using this Service Handbook.

In order to correctly manage and maintain the copier, the Service Handbook must be read carefully before doing service work, both in the course of technical training and after training is completed. Also, keep the Service Handbook for future servicing. When it becomes impossible to read the description about safety and warning (due to illegibility or tearing), the relevant page should be replaced.

DESCRIPTION ITEMS FOR DANGER, WARNING AND CAUTION

In the Service Handbook, the three expressions ⚠ DANGER, ⚠ WARNING and ⚠ CAUTION are explicitly defined as follows:

⚠ **DANGER:**	**Actions having a high possibility of causing death or serious injury.**
⚠ **WARNING:**	**Actions having a possibility of causing death or serious injury.**
⚠ **CAUTION:**	**Actions having a possibility of causing light injury, medium difficulty or physical damage.**

When servicing, all work (disassembly, reassembly, adjustment, repair and maintenance) needs to be conducted with the utmost care.

IMPORTANT WARNING ITEMS

[1] UNAUTHORISED MODIFICATIONS

Konica copiers have gained a reputation for being very reliable products. This has been achieved with a combination of outstanding design and a knowledgeable service force.

The design of a copier is extremely complex. During the design process, tolerance and safety factors are determined when considering the mechanical, electrical and electronic, as well as the physical, dimensions of a copier. Any modification made by individuals not involved in the engineering process has the potential to reduce product performance and safety margins. For this reason, any modification not specifically authorised by Konica Corporation is strictly prohibited.

The following is a list of prohibited actions (not all-inclusive) that serves to demonstrate the intentions stated above.

⚠ **CAUTION:**

(1) Do not use an extension cord or any unauthorised power cord.
(2) Do not use any type of fuse that is not specified by Konica (unspecified fuses interfere with safety functions and may result in personal injury and/or fire damage).
(3) Do not use wire, paper clips, solder, etc., to replace or override any fuse (including temperature fuses).
(4) Do not remove any air filter (except when replacing filters).
(5) Do not override relay function (by wedging paper between relay contacts).
(6) Do not make any change which may interfere with built-in safety features (safety mechanism or safety circuit).
(7) Do not make any modification not mentioned in the Service Handbook.
(8) Do not use any unspecified replacement parts.

[2] GENERAL SAFETY GUIDELINES

This copier has been examined in accordance with safety regulation laws, prior to leaving the manufacturing facility. This is to protect copier users and service personnel from injury. As with any operating device, however, components will break down with everyday wear-and-tear. For this reason, it is important that a technician periodically performs safety checks on the copier to maintain optimum reliability and safety.

⚠ **CAUTION:**

(1) Wear suitable clothing when operating the copier.
(2) Avoid injury.
(3) Before servicing, ensure that the copier is disconnected from the power source. (There is a risk of electric shock as current may still run through parts such as the paper feed unit, even after the power is turned OFF.)
(4) Be careful when adjusting or checking operations when the power is ON. (After taking the cover off, be careful when touching electrical parts or high-voltage parts as there is a risk of electric shock. Injury may also occur to fingers if caught between the drive gears and chain.)

The following checks (not all-inclusive) should be made during each service call.

⚠ **CAUTION:**

(1) Look for sharp edges, burrs and any damage on external cover and copier frame.
(2) Inspect all cover hinges for wear (loose or broken).
(3) Inspect cables for wear, frays or pinched areas.
(4) Ensure that the power cord insulation is not damaged. (That there are no exposed electrical conductors.)
(5) Ensure that the power cord is properly mounted to the frame by cord clamps.

⚠ WARNING:

(1) Ensure the machine is properly grounded.
(2) An incorrectly positioned earth cable may result in an explosion or electric shock. The earth cable should therefore not be connected to the following items:
  a. Gas pipe
  b. Lightning conductor
  c. Earth cable for telephone line
  d. Water service pipe made of resin or water service pipe and faucet which have not been approved for grounding by the Water Authority.

[3] SAFEGUARDS DURING SERVICE CALLS

⚠ CAUTION:

(1) Read the Service Handbook before making any modifications and carry out maintenance in the correct order. Do not make any adjustment not mentioned in the Service Handbook.
(2) If the power cord is damaged, replace it with one specified in the Service Handbook. (There is a risk of fire from a short circuit if a damaged cord is not replaced.)
(3) Do not place the power cord where it is likely to be stepped on or crushed. (There is a risk of fire if the power cord cable is damaged in this way.)
(4) When disconnecting connectors, do not pull the wiring (particularly on AC line wiring and high-voltage parts).
(5) Carefully remove all toner and dirt on electrical units and electrodes.
(6) After part replacement or repair work, route the wiring in such a way that it does not touch any burrs or sharp edges.
(7) Check that all screws, parts, wiring and connectors which were removed during maintenance are replaced in their original positions. (In particular, do not forget to insert connectors, power cord and screws.)
(8) When making periodic inspections, check whether or not the power cord is plugged in. (There is a risk of fire if the plug is not properly inserted.)

⚠ WARNING:

(1) Ensure the power is disconnected before disassembling/adjusting parts using a laser on the optics unit and unit parts.
(2) Do not remove the main body cover on the write unit as the laser may cause eye damage.
(3) Do not apply power if the write unit has slipped out of the correct position.

[4] WHEN USING SERVICE MATERIALS

⚠ CAUTION:

Care should be exercised when using isopropyl alcohol due to its flammability. When using alcohol to clean parts, observe the following precautions:

(1) Disconnect copier from the power source.
(2) Use alcohol in small quantities to avoid spillage or puddling. Any spillage should be cleaned up with a rag and disposed of properly.
(3) Be sure that there is adequate ventilation.
(4) Allow a surface which has been in contact with alcohol to dry for a few minutes to ensure that the alcohol has evaporated completely before connecting power or installing covers.

⚠ CAUTION:

Although toner and developer are harmless, take care not to inhale them or get them in your eyes. If this happens, bathe eyes well with clear water and consult a doctor.

[5] ACTION TO TAKE IN THE EVENT OF A SERIOUS ACCIDENT

(1) When an accident occurs, the sales company or dealer that was first notified of the accident must take necessary emergency action to assist the injured person and also prevent any further damage or injury.
(2) If a customer notifies you of a serious accident, promptly check the situation regarding damage and injury, etc., and report to KBJ. Upon receiving this report, KBJ must notify Konica.
(3) In order to determine the cause of the accident, preserve the site of the accident and also the machine itself, witness the investigation and follow any instructions from KBJ or Konica.
(4) In order to report or take appropriate action for a serious accident, follow the Preventive Program Regulation for an Electrical Parts Accident.

[6] SUMMARY

(1) The operability of a copier and, more importantly, the safety of those who operate or service it, are directly dependent upon the conscientious effort of each and every technician. Each copier must be thoroughly inspected with respect to safety concerns. When attending a service call, use good judgement to identify safety hazards or potential safety hazards that may be present, and take appropriate action.

1

MAIN BODY

1. MAIN BODY

DB-608 PRODUCT SPECIFICATIONS 1-1
- [1] Type 1-1
- [2] Function 1-1
- [3] Particulars of Machine 1-1
- [4] Maintenance 1-1
- [5] Machine Operating Environment 1-1

CENTRE CROSS-SECTION 1-2
DRIVE SECTION 1-3
500-SHEET PAPER TRAY UNIT 1-4
- [1] Construction 1-4
- [2] Mechanism 1-4
- [3] Disassembly and Assembly 1-5
- [4] 500-Sheet Paper Feed Tray and No-Paper Detection Control 1-7
- [5] Tray-Up Control (PFU) 1-8
- [6] Paper Size Detection Control 1-9

1500-SHEET PAPER TRAY UNIT 1-10
- [1] Construction 1-10
- [2] Mechanism 1-10
- [3] Disassembly and Assembly 1-10
- [4] 1500-Sheet Paper Feed Tray and No-Paper Detection Control 1-14
- [5] Tray-Up Control (LCT) 1-15

LCT ADJUSTMENT

- [1] Paper Centering Adjustment 1-17
- [2] Adjusting the Inclination of the Paper Tray 1-17

This section covers the structure, functions, operation and method of disassembling and assembling the machine.
Observe the following precautions when performing disassembly and assembly work:
1. Make sure that the power cord is unplugged before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them into the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

DB-608 PRODUCT SPECIFICATIONS

[1] Type

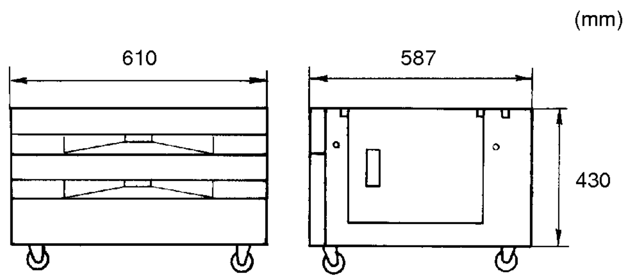
Type:	Paper feed tray (front loading)

[2] Function

Paper size:	(Upper tray) A3/B4/A4/A4R/B5/B5R/A5R/8.5 x 11R/8.5 x 14 (Lower tray) A4/A4R/B5/B5R/8.5 x 11/8.5 x 11R
Paper type:	60 g/m^2 to 90 g/m^2 high-quality paper
Maximum paper storage:	Upper tray: 500 sheets (80 g/m^2) Lower tray: 1500 sheets (80 g/m^2)

[3] Particulars of Machine

Power source:	24/5 V DC (supplied from copier main body)
Power consumption:	Maximum 40 VA
Weight:	Approx. 26 kg (including stand)
Machine dimensions:	



[4] Maintenance

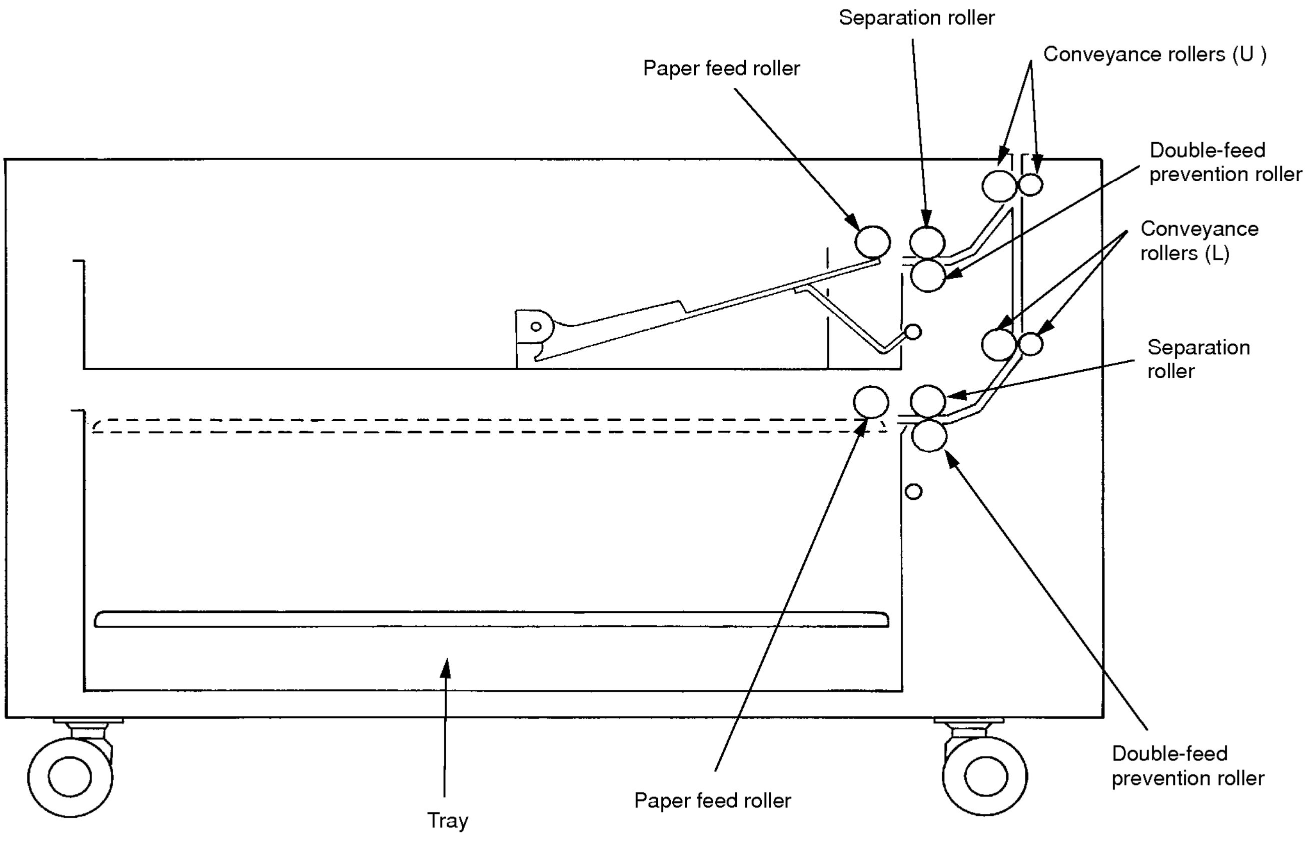
Maintenance:	Based on copier main body
Machine life:	Based on copier main body

[5] Machine Operating Environment

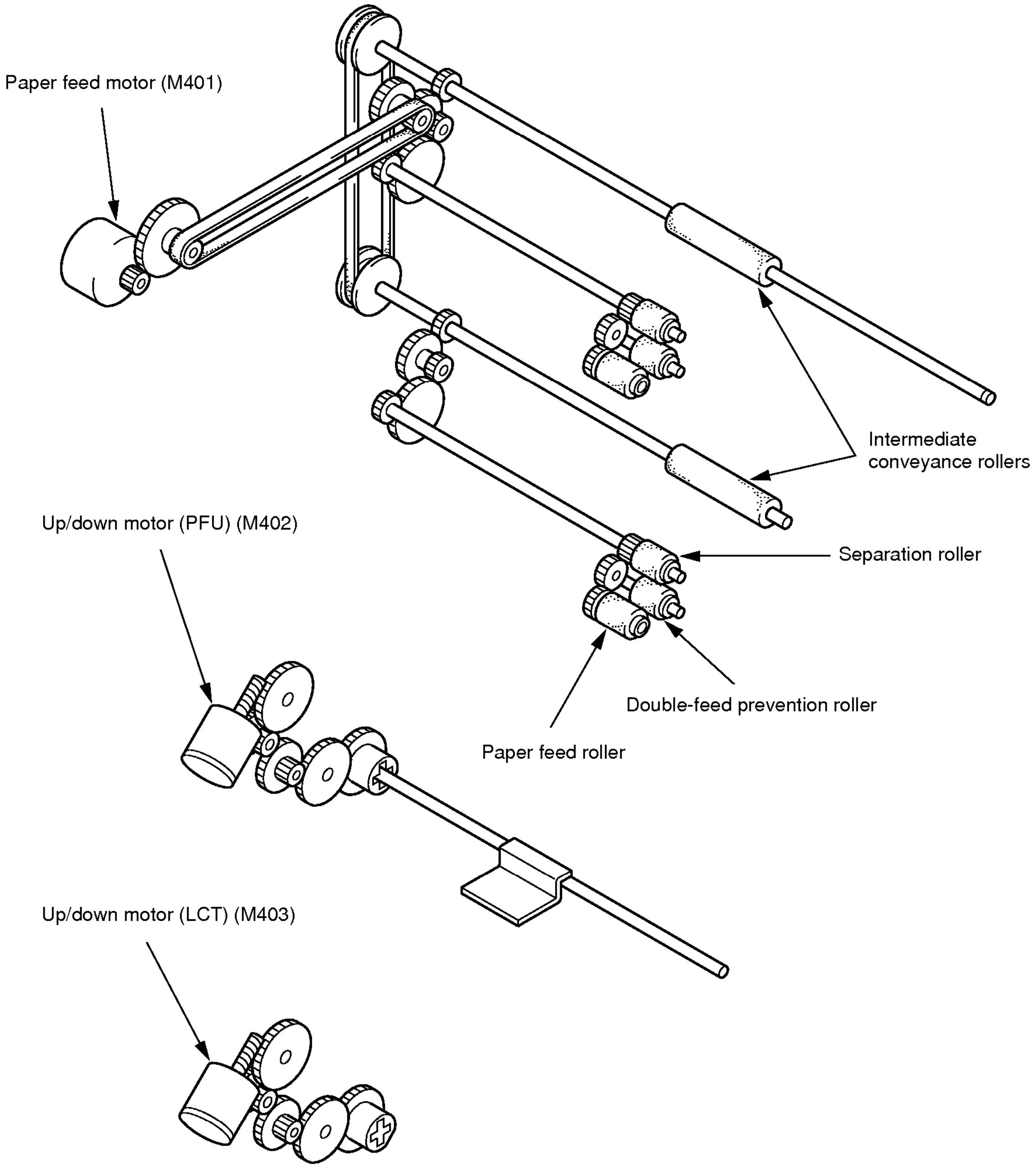
Temperature:	10°C to 30°C
Humidity:	20% to 80% RH

Note: These specifications are subject to change without notice.

CENTRE CROSS-SECTION

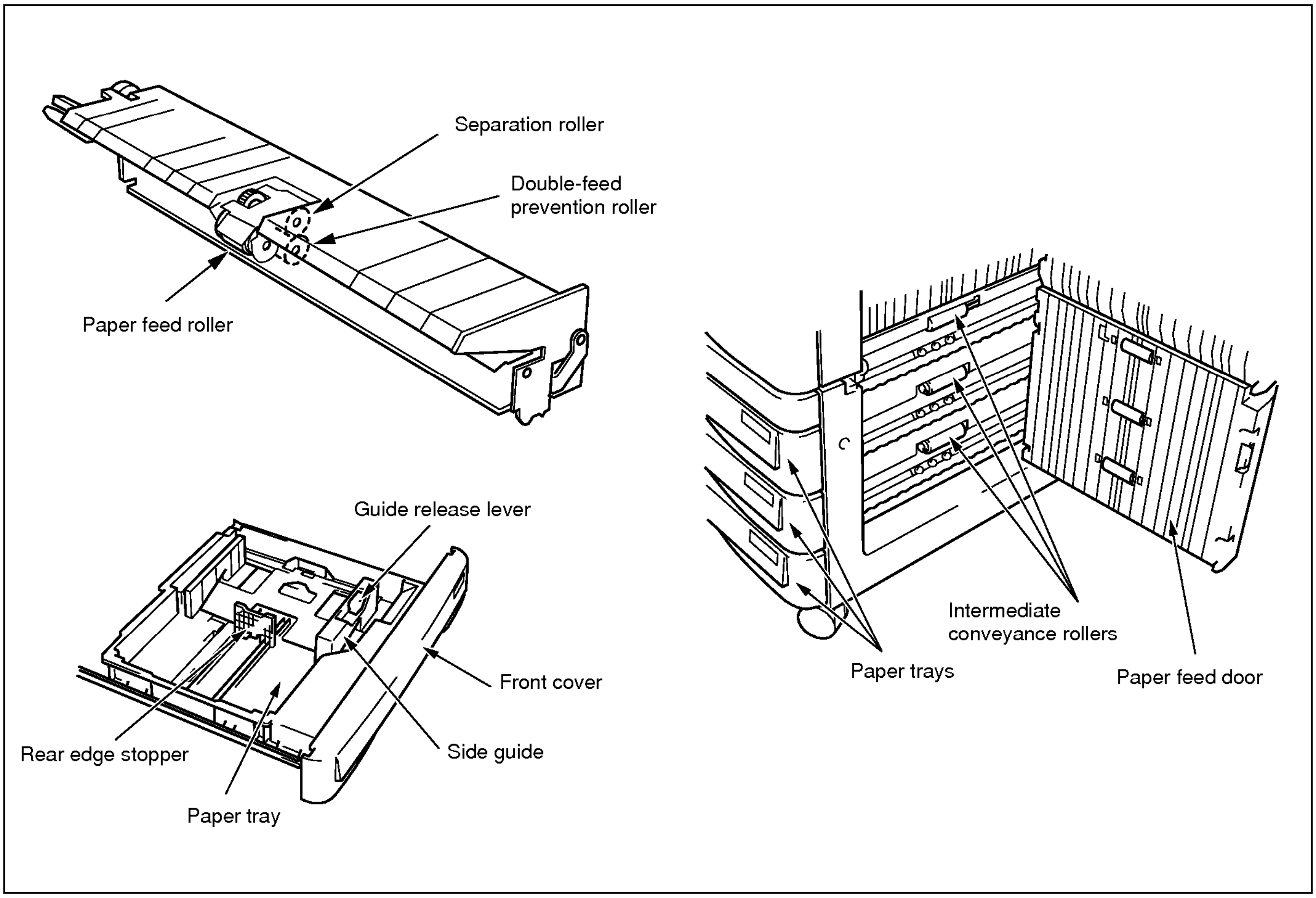

Separation roller
Conveyance rollers (U)
Paper feed roller
Double-feed prevention roller
Conveyance rollers (L)
Separation roller
Double-feed prevention roller
Paper feed roller
Tray

DRIVE SECTION


Paper feed motor (M401)
Intermediate conveyance rollers
Up/down motor (PFU) (M402)
Separation roller
Double-feed prevention roller
Paper feed roller
Up/down motor (LCT) (M403)

500-SHEET PAPER TRAY UNIT

[1] Construction


Separation roller
Double-feed prevention roller
Paper feed roller
Guide release lever
Front cover
Side guide
Rear edge stopper
Paper tray
Intermediate conveyance rollers
Paper trays
Paper feed door

[2] Mechanism

Mechanism	Method
Paper feed	Paper feed roller
Paper lifting	Paper lift-up plate
Double-feed prevention	Torque limiter
1st paper feed	Separation roller, paper feed solenoid
Intermediate conveyance	Intermediate conveyance roller
Paper jam handling	Double-feed prevention roller pressure release
No-paper detection	Photosensor
Paper size detection	Tact switch
Paper conveyance	Roller conveyance
Conveyance drive	Timing belt

[3] Disassembly and Reassembly

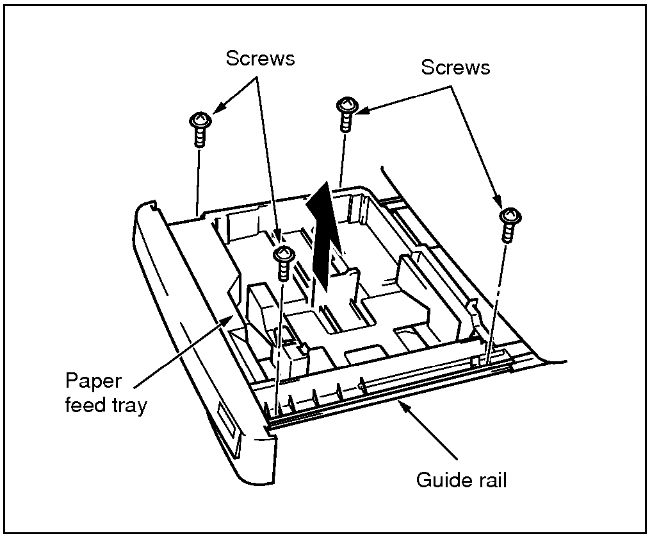
⚠CAUTION: **Ensure the power cord is unplugged from the socket.**

1. Removing and reinstalling the paper feed tray

a. Procedure

(1) Pull out the paper feed tray and remove the two screws on the left and the two screws on the right.

(2) Remove the paper feed tray from the guide rail.


Screws
Screws
Paper feed tray
Guide rail

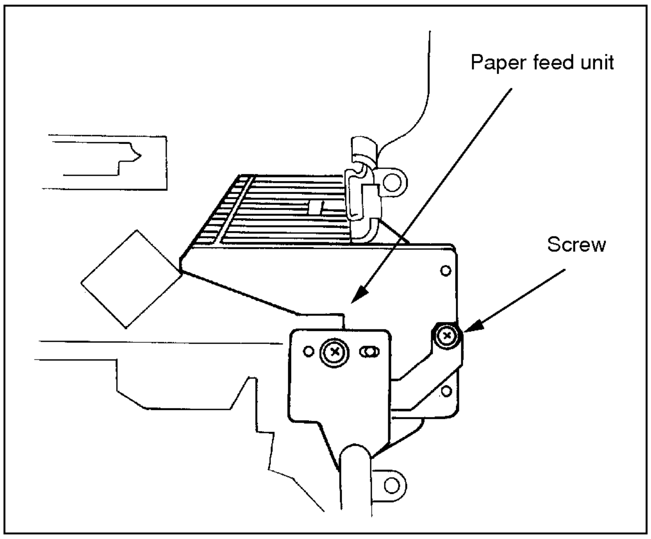
(3) To reinstall the paper feed tray, reverse the procedure above.

2. Removing and reinstalling the paper feed unit

a. Procedure

(1) Pull out the paper tray towards you.

(2) Remove the screw, then remove the paper feed unit towards you.


Paper feed unit
Screw

(3) Reinstall the paper feed unit by reversing the procedure above.

⚠CAUTION: **After installing the paper feed unit, take a copy to check that the copier is operating correctly. There is a possibility the paper will not feed if the rocking gear and paper feed solenoid are not in their correct positions.**

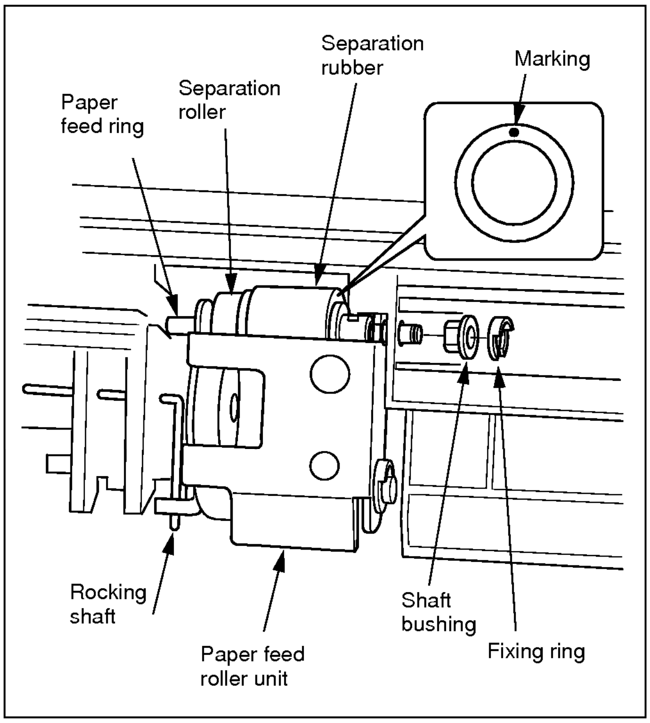
3. Replacing the separation rubber and the paper supply rubber

a. Procedure

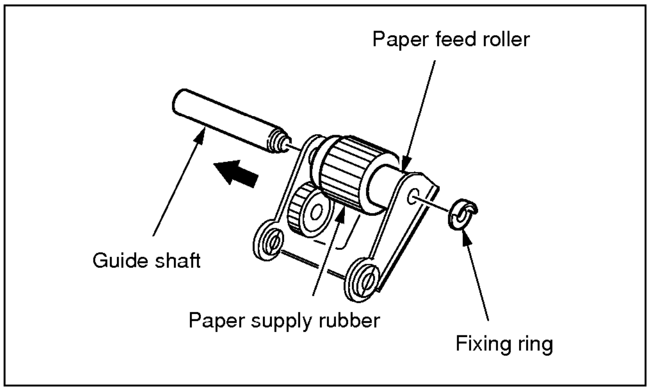
(1) Remove the paper feed unit.

(2) Remove the fixing ring and shaft holder.

(3) While pulling out the paper feed shaft, remove the feed roller from the paper feed roller unit.


Separation rubber
Marking
Paper feed ring
Separation roller
Rocking shaft
Shaft bushing
Paper feed roller unit
Fixing ring

(4) Remove the fixing ring and, pulling the guide shaft in the direction of the arrow, remove the paper feed roller.


Paper feed roller
Guide shaft
Paper supply rubber
Fixing ring

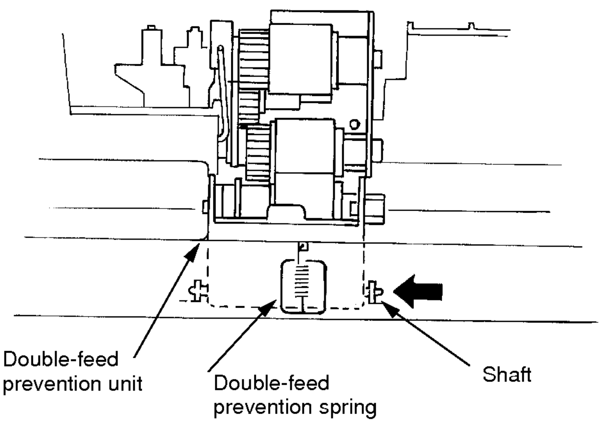
(5) Remove the separation rubber from the separation roller.
(6) Remove the paper supply rubber from the paper feed roller.
(7) To reinstall, reverse the above procedure.

⚠CAUTION: **Make sure each roller rubber is installed in the correct direction. Reinstall so that the rocking shaft fits inside the paper feed roller unit.**

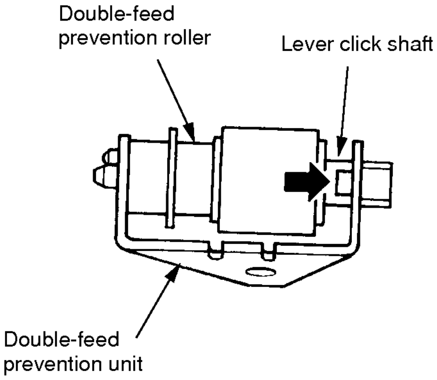
4. Removing and reinstalling the double-feed prevention roller

a. Procedure

(1) Remove the paper feed unit.
(2) Remove the double-feed pressure spring.
(3) While pressing the shaft in the direction of the arrow, remove the double-feed prevention unit from the paper feed unit.


Double-feed prevention unit
Double-feed prevention spring
Shaft

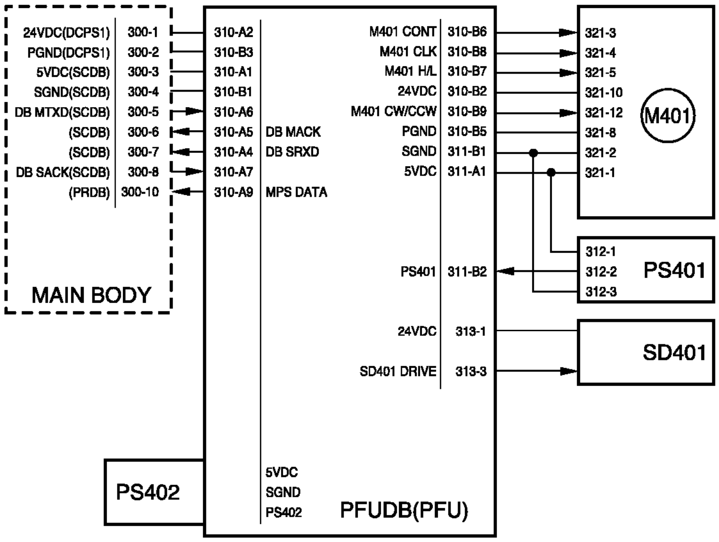
(4) While pressing the protrusion on the lever click shaft, pull the shaft out and remove the double-feed prevention roller.


Double-feed prevention roller
Lever click shaft
Double-feed prevention unit

(5) Reinstall the double-feed prevention roller by reversing the procedure above.

⚠CAUTION: **After reinstallation, make sure that the double-feed pressure spring moves the double-feed prevention roller smoothly.**

## [4] 500-Sheet Paper Feed Tray and No-Paper Detection Control


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
(PRDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
300-10
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
310-A9
DB MACK
DB SRXD
MPS DATA
M401 CONT
M401 CLK
M401 H/L
24VDC
M401 CW/CCW
PGND
SGND
5VDC
310-B6
310-B8
310-B7
310-B2
310-B9
310-B5
311-B1
311-A1
321-3
321-4
321-5
321-10
321-12
321-8
321-2
321-1
M401
PS401
311-B2
312-1
312-2
312-3
PS401
24VDC
313-1
SD401 DRIVE
313-3
SD401
PS402
5VDC
SGND
PS402
PFUDB(PFU)

Paper is fed by the drive force of M401 (paper feed) to each paper feed roller and each feed roller through SD401 (paper feed (PFU)).

The M401 and SD401 are driven by the PFUDB (PFU) (PFU drive board (PFU)) and controlled by the PFUDB (PFU) in the main body.

1. Operation

a. Operation when copying

Paper feed for the first sheet starts a specified time after the start button is turned ON. The paper feed operation starts when the M401 (paper feed) and SD401 turn ON.

The M401 turns OFF a specified time after the PS401 (passage-detecting sensor) detects the leading edge of the page. SD401 turns OFF a specified time after turning ON.

Paper feed for the second and subsequent sheets starts a specified time after the SD401 for the previous page turns ON.

When the paper tray is empty, PS402 (no-paper detecting sensor (PFU)) changes to a high signal (L), to inform the PFUDB (PFU) in the main body that there is no paper in the tray.

2. Signals

a. Input signals

(1) PS401 (PS401 → PFUDB (PFU))

This signal is output when PS401 detects paper passing through the paper conveyance section. It changes to an [H] signal when paper is detected.

(2) PS402 (PS402 → PFUDB (PFU))

This signal is a no-paper detecting signal for the PFU.

[H]: When there is no paper in the tray
[L]: When there is paper in the tray

(3) DB MTXD (MAIN BODY → PFUDB (PFU))

The serial data line informs main body of DB operation.

(4) DB SACK (MAIN BODY → PFUDB (PFU))

This signal is the transmission approved signal from the main body to the DB.

b. Output signals

(1) M401 CONT (PFUDB (PFU) → M401)
This is the ON/OFF control signal for M401 (paper feed).
[H]: M401 OFF
[L]: M401 ON

(2) M401 CLK (PFUDB (PFU) → M401)
This is the reference clock signal for M401 rotation speed control.

(3) M401 H/L (PFUDB (PFU) → M401)
This is the signal for rotation speed control for M401.
[H]: Low speed
[L]: High speed

(4) M401 CW/CCW (PFUDB (PFU) → M401)
This is the signal for rotation direction control for M401.
[H]: Reverse direction
[L]: Forward direction

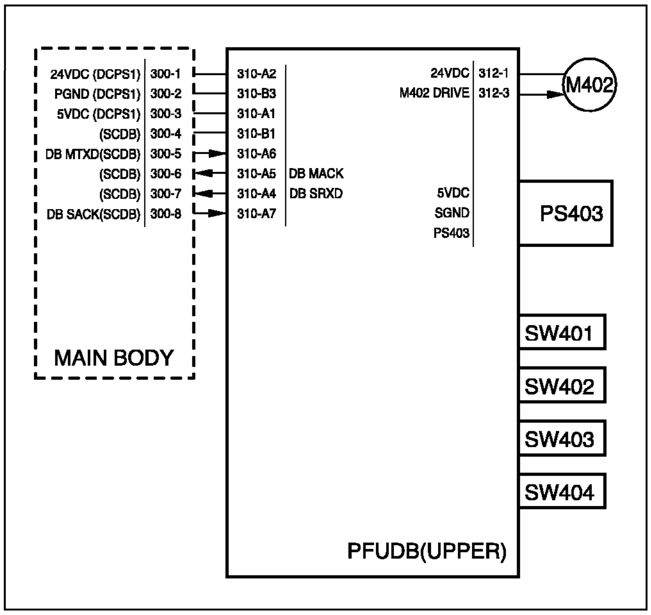
(5) SD401 DRIVE (PFUDB (PFU) → SD401)
This is the ON/OFF control signal for SD401.
[H]: OFF
[L]: ON

(6) DB SRXD (PFUDB (PFU) → MAIN BODY)
The serial data line informs DB of main body operation.

(7) DB MACK (PFUDB (PFU) → MAIN BODY)
This signal is the transmission approved signal from the main body to the DB.

(8) MPS DATA (PFUDB (PFU) → MAIN BODY)
This signal feeds the PS401 detecting signal back to the main body.

[5] Tray-Up Control (PFU)


24VDC (DCPS1)
PGND (DCPS1)
5VDC (DCPS1)
(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
DB MACK
DB SRXD
24VDC
M402 DRIVE
312-1
312-3
M402
5VDC
SGND
PS403
PS403
SW401
SW402
SW403
SW404
PFUDB(UPPER)

The paper tray is raised by transmitting the M402 (lift-up motor (PFU)) driving force to the paper-lifting lever.

The M402 is driven by the PFUDB (PFU) (PFU drive board (PFU)) and controlled by the PFUDB (U) in the main body.

1. Operation

The tray is raised when the M402 turns ON after the SW401, 402, 403 or 404 (paper size-detecting switches) turn ON.

After the tray is raised, the PS403 (upper limit-detecting sensor (PFU)) detects the upper limit of the paper in the tray. The M402 turns OFF and the tray stops.

When paper is fed the PS403 turns ON and the tray is raised when the M402 turns ON again.

The paper tray is lowered mechanically.

2. Signals

a. Input signals

(1) PS403 (PS403 → PFUDB (PFU))
Upper limit-detecting signal on PFU.
The signal is at [H] level when the upper limit of paper is detected.

(2) DB MTXD (MAIN BODY → PFUDB (PFU))
The serial data line informs main body of DB operation.

(3) DB SACK (MAIN BODY → PFUDB (PFU))
This signal is the transmission approved signal from the main body to the DB.

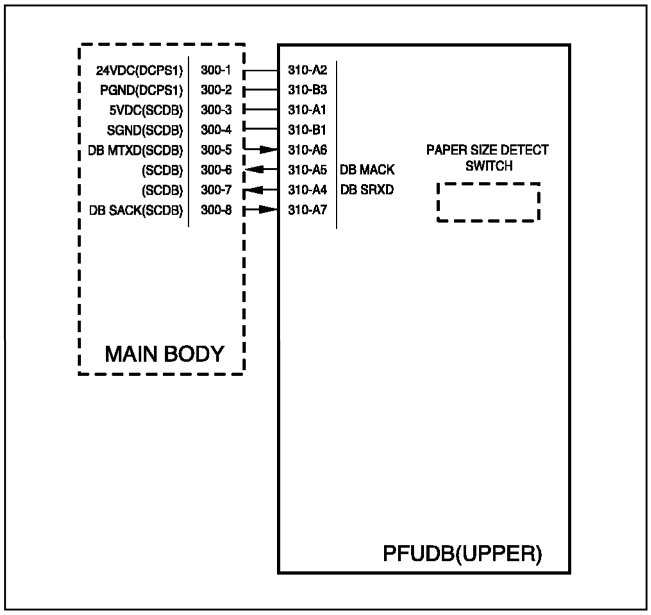
b. Output signals

(1) M402 DRIVE (PFUDB (PFU) → M402)
This is the ON/OFF control signal for M402.
[H]: OFF
[L]: ON

(2) DB SRXD (PFUDB (PFU) → MAIN BODY)
The serial data line informs DB of main body operation.

(3) DB MACK (PFUDB (PFU) → MAIN BODY)
This signal is the transmission approved signal from the DB to the main body.

[6] Paper Size Detection Control


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
DB MACK
DB SRXD
PAPER SIZE DETECT SWITCH
MAIN BODY
PFUDB(UPPER)

The PFUDB (PFU) (PFU drive board (PFU)) is fitted with a series of tact switches for detecting paper size. This informs the main body of the paper size in each tray.

1. Operation

Each tray has a series of actuators that are operated by the paper guides. When each tray is inserted, these projections turn the tact switches on the PFUDB (PFU) OFF and ON. The PFUDB (PFU) determines the paper size of the PFU from the ON/OFF combinations.

2. Signals

a. Input signals

(1) DB MTXD (MAIN BODY → PFUDB (U))
The serial data line informs main body of DB operation.

(2) DB SACK (MAIN BODY → PFUDB (U))
This signal is the transmission approved signal from the main body to the DB.

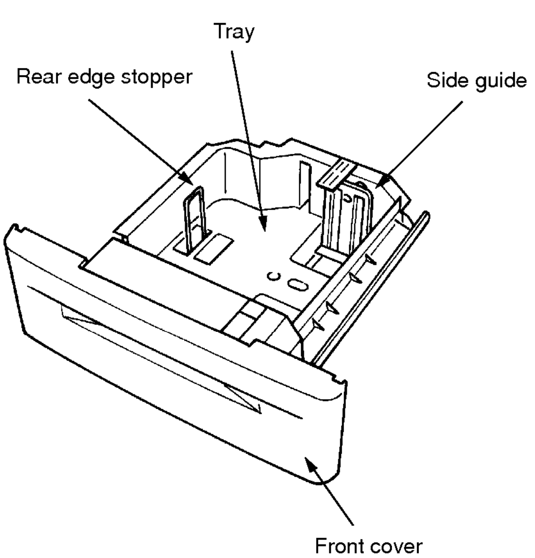
b. Output signals

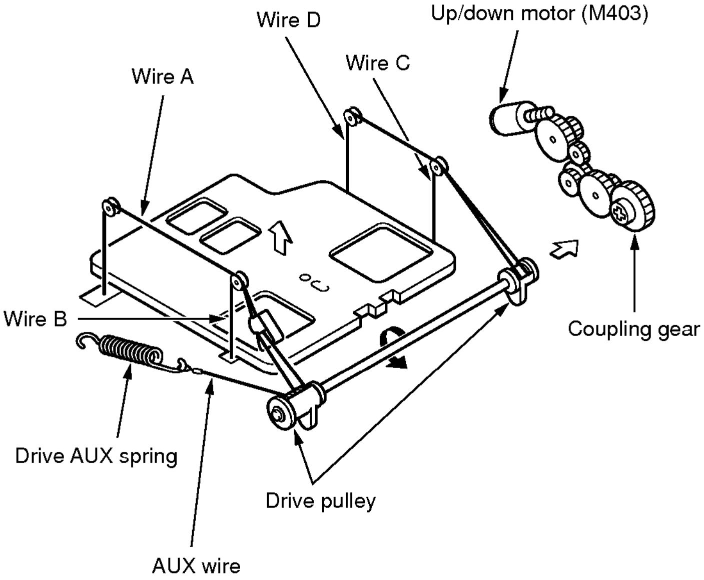
(1) DB SRXD (PFUDB (U) → MAIN BODY)
The serial data line informs DB of main body operation.

(2) DB MACK (PFUDB (U) → MAIN BODY)
This signal is the transmission approved signal from the DB to the main body.

1500-SHEET PAPER TRAY UNIT

[1] Construction


Tray
Rear edge stopper
Side guide
Front cover


Wire D
Up/down motor (M403)
Wire A
Wire C
Wire B
Coupling gear
Drive AUX spring
Drive pulley
AUX wire

[2] Mechanism

Mechanism	Method
Paper stack	Tray 1
Paper lifting (*1)	Wire driven
Tray loading	Front loading

***1. Paper lifting**

The paper tray (LCT) is suspended using four Up/Down drive wires (A, B, C and D).

When paper is loaded into the tray, the tray moves down due to the weight of the paper. The weight of the paper is balanced by the tension of the drive auxiliary spring.

When the paper tray (LCT) is inserted, the lift-up motor (M403) rotates, winding the wires on the drive reel and raising the tray.

When the paper tray is withdrawn from the frame, the tray drive section and the coupling separate from each other. This causes the tray to move down to the position where the paper is balanced by the tension of the drive auxiliary spring.

[3] Disassembly and Assembly

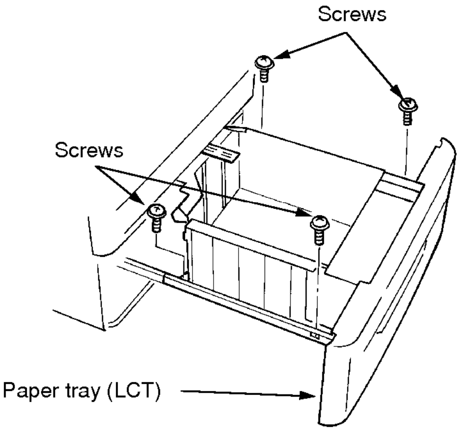
⚠CAUTION: **Ensure the power cord is unplugged from the socket.**

1. Removing and reinstalling the paper feed tray (LCT)

a. Procedure

(1) Slide out the paper tray and remove the two right and two left screws.

(2) Remove the paper tray from the rails.


Screws
Screws
Paper tray (LCT)

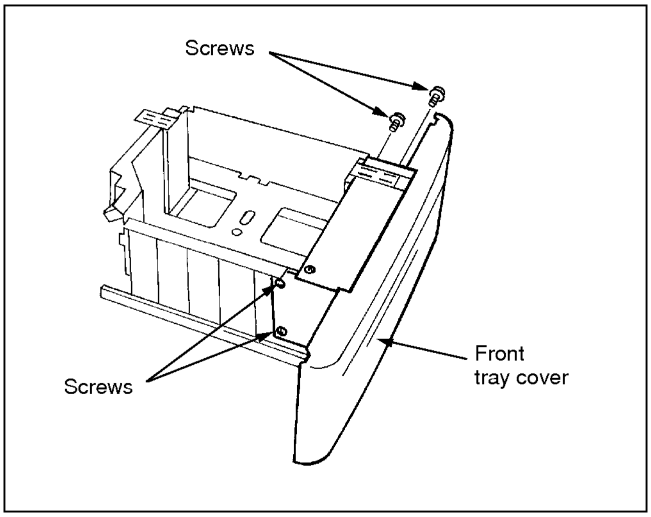
(3) Reinstall the paper tray by reversing the procedure above.

2. Removing and reinstalling the front tray cover (LCT)

a. Procedure

(1) Remove the paper tray.

(2) Remove the five screws, then remove the front tray cover.


Screws
Screws
Front
tray cover

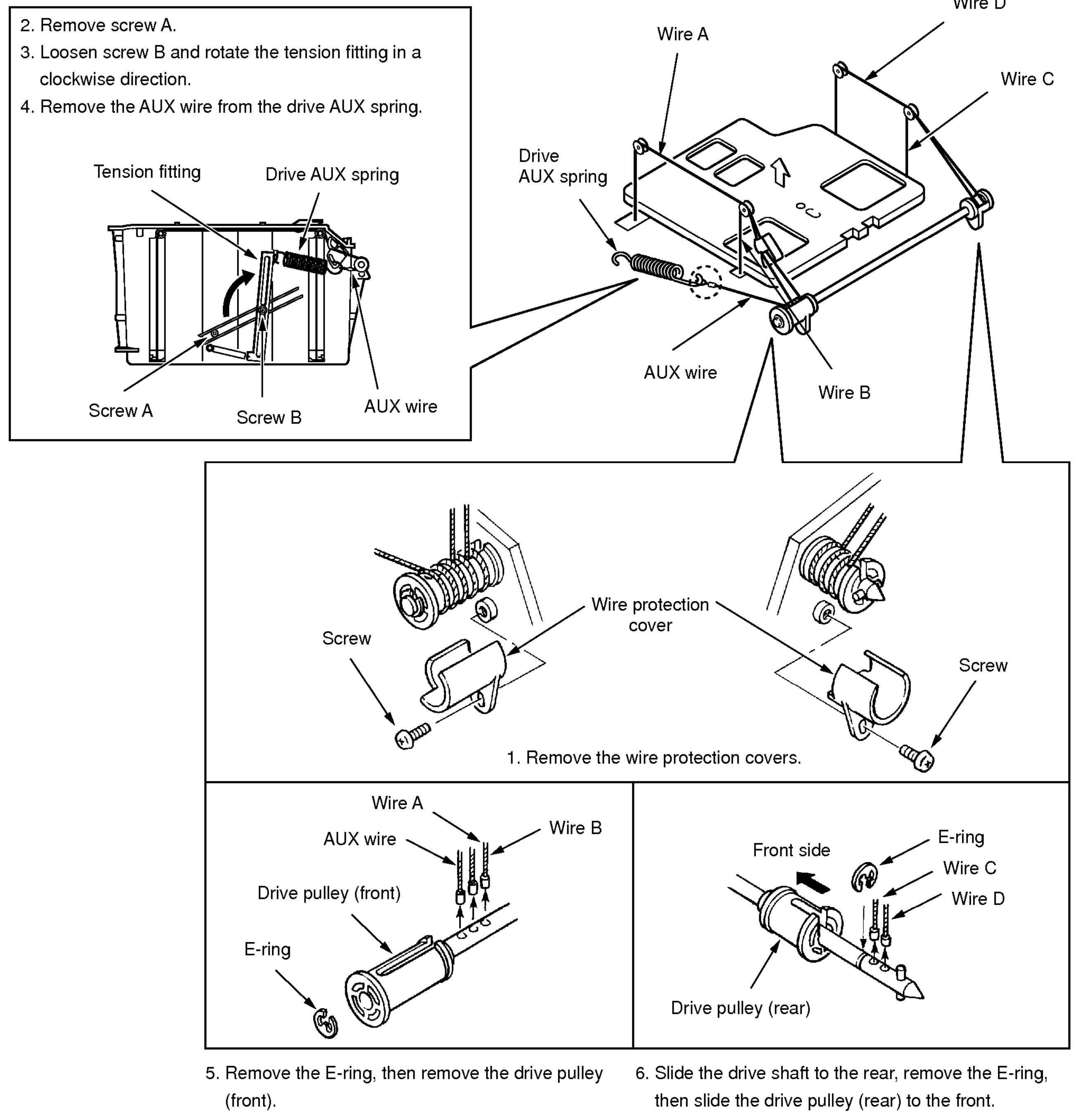
(3) Reinstall the front tray cover by reversing the procedure above.

3. Replacing the Up/Down Wires

⚠**CAUTION:**
- **a. After replacing the up/down drive wires or readjusting wire tension, move the tray up and down to make sure that it moves smoothly.**
- **b. Be careful not to cross or overlap the wires.**
- **c. After installing the up/down wires, adjust the inclination of the tray.**

Wire A: 513.9±0.4 mm
Wire B: 288.9±0.4 mm
Wire C: 305±0.4 mm
Wire D: 410.5±0.4 mm
AUX wire: 245.2±0.5 mm

Removing the Up/Down Wires



2. Remove screw A.
3. Loosen screw B and rotate the tension fitting in a clockwise direction.
4. Remove the AUX wire from the drive AUX spring.

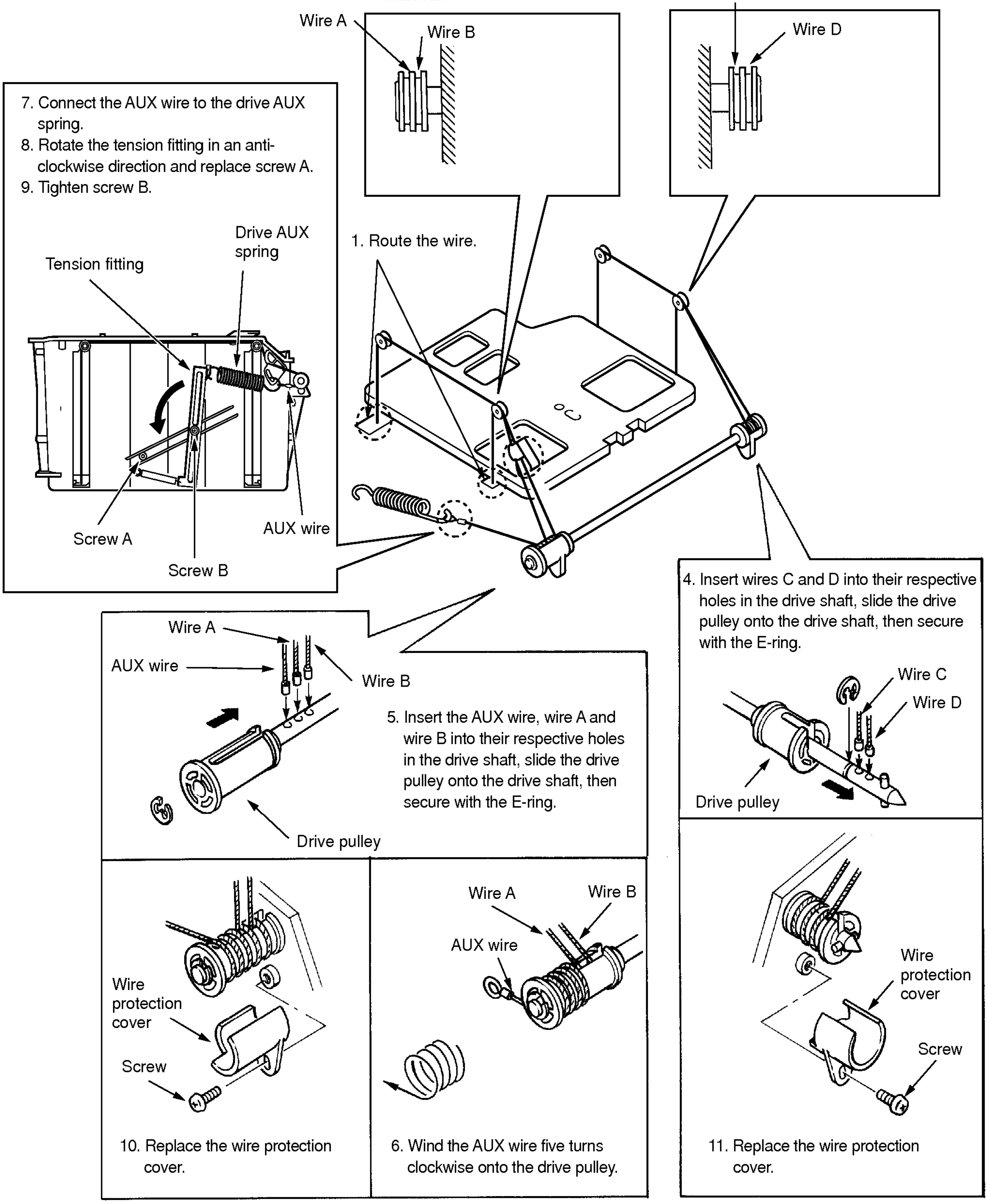
1. Remove the wire protection covers.

5. Remove the E-ring, then remove the drive pulley (front).

6. Slide the drive shaft to the rear, remove the E-ring, then slide the drive pulley (rear) to the front.

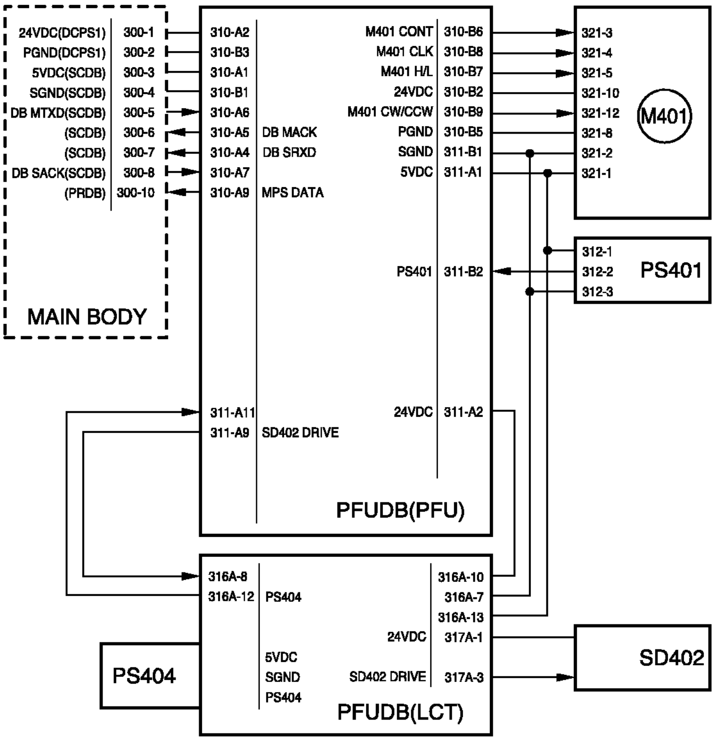
Tension fitting
Drive AUX spring
Screw A
Screw B
AUX wire
Wire D
Wire A
Wire C
Drive AUX spring
AUX wire
Wire B
Screw
Wire protection cover
Screw
Wire A
AUX wire
Wire B
Drive pulley (front)
E-ring
Front side
E-ring
Wire C
Wire D
Drive pulley (rear)

Adjusting Up/Down Wire Tension


Wire A
Wire B
Wire C
Wire D
Tension fitting
Drive AUX spring
Screw A
Screw B
AUX wire
Wire A
AUX wire
Wire B
Drive pulley
Wire C
Wire D
Drive pulley
Wire protection cover
Screw
Wire A
Wire B
AUX wire
Wire protection cover
Screw

1. Route the wire.
2. Thread wires A and B through the grooves in the pulley, then thread them above the wire adjusting material.
3. Thread wires C and D through the grooves in the pulley.
4. Insert wires C and D into their respective holes in the drive shaft, slide the drive pulley onto the drive shaft, then secure with the E-ring.
5. Insert the AUX wire, wire A and wire B into their respective holes in the drive shaft, slide the drive pulley onto the drive shaft, then secure with the E-ring.
6. Wind the AUX wire five turns clockwise onto the drive pulley.
7. Connect the AUX wire to the drive AUX spring.
8. Rotate the tension fitting in an anti-clockwise direction and replace screw A.
9. Tighten screw B.
10. Replace the wire protection cover.
11. Replace the wire protection cover.

## [4] 1500-Sheet Paper Feed Tray and No-Paper Detection Control


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
(PRDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
300-10
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
310-A9
DB MACK
DB SRXD
MPS DATA
M401 CONT
M401 CLK
M401 H/L
24VDC
M401 CW/CCW
PGND
SGND
5VDC
310-B6
310-B8
310-B7
310-B2
310-B9
310-B5
311-B1
311-A1
321-3
321-4
321-5
321-10
321-12
321-8
321-2
321-1
M401
312-1
312-2
312-3
PS401
PS401
311-B2
311-A11
311-A9
SD402 DRIVE
24VDC
311-A2
PFUDB(PFU)
316A-8
316A-12
PS404
316A-10
316A-7
316A-13
24VDC
317A-1
5VDC
SGND
PS404
SD402 DRIVE
317A-3
PFUDB(LCT)
PS404
SD402

Paper is fed by transmitting the M401 (paper feed motor) driving force to the paper feed roller and feed roller through SD402 (paper feed (LCT)).

M401 is driven by the PFUDB (PFU drive board (PFU)) and controlled by the paper feed drive board PFUDB (PFU) in the main body.

SD402 is driven by the PFUDB (PFU drive board (LCT)) and controlled by the PFUDB (PFU).

1. Operation

a. Operation when copying

Paper feed for the first sheet starts a specified time after the start button is turned ON. The paper feed operation starts when the M401 (paper feed) and SD402 turn ON.

The M401 turns OFF a specified time after the PS401 (passage-detecting sensor) detects the leading edge of the page. SD402 turns OFF a specified time after turning ON.

Paper feed for the second and subsequent sheets starts a specified time after the SD402 for the previous page turns ON.

When the paper tray is empty, PS404 (no-paper detecting sensor (LCT)) changes to a high signal (L), to inform the PFUDB (PFU) in the main body that there is no paper in the tray.

2. Signals

a. Input signals

(1) PS401 (PS401 → PFUDB (PFU))
This signal is output when PS401 detects paper passing through the paper conveyance section. It changes to an [H] signal when paper is detected.

(2) PS404 (PS404 → PFUDB (LCT) → PFUDB (PFU))
This signal is a no-paper detecting signal for the LCT.
[H]: When there is no paper in the tray
[L]: When there is paper in the tray

(3) DB MTXD (MAIN BODY → PFUDB (PFU))
The serial data line informs main body of DB operation.

(4) DB SACK (MAIN BODY → PFUDB (PFU))
This signal is the transmission approved signal from the main body to the DB.

b. Output signals

(1) M401 CONT (PFUDB (PFU) → M401)
This is the ON/OFF control signal for M401 (paper feed).
[H]: M401 OFF
[L]: M401 ON

(2) M401 CLK (PFUDB (PFU) → M401)
This is the reference clock signal for rotation speed control for M401.

(3) M401 H/L (PFUDB (PFU) → M401)
This is the signal for rotation speed control for M401.
[H]: Low speed
[L]: High speed

(4) M401 CW/CCW (PFUDB (PFU) → M401)
This is the signal for rotation direction control for M401.
[H]: Reverse direction
[L]: Forward direction

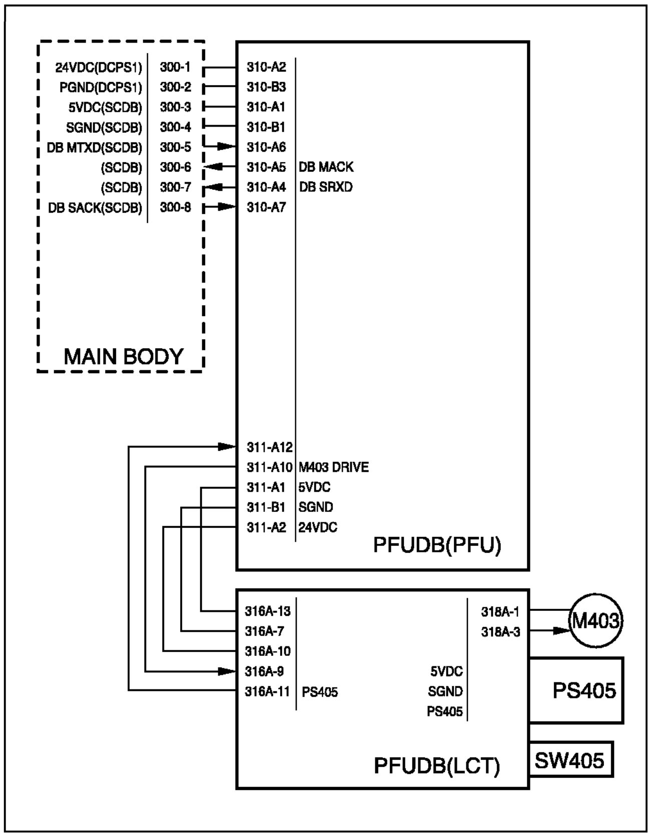
(5) SD402 DRIVE (PFUDB (PFU) → PFUDB (LCT) → SD402)
This is the ON/OFF control signal for SD402.
[H]: OFF
[L]: ON

(6) DB SRXD (PFUDB (PFU) → MAIN BODY)
The serial data line informs DB of main body operation.

(7) DB MACK (PFUDB (PFU) → MAIN BODY)
This signal is the transmission approved signal from the main body to the DB.

(8) MPS DATA (PFUDB (PFU) → MAIN BODY)
This signal feeds the PS401 detecting signal back to the main body.

[5] Tray-Up Control (LCT)


24VDC(DCPS1)
PGND(DCPS1)
5VDC(SCDB)
SGND(SCDB)
DB MTXD(SCDB)
(SCDB)
(SCDB)
DB SACK(SCDB)
300-1
300-2
300-3
300-4
300-5
300-6
300-7
300-8
MAIN BODY
310-A2
310-B3
310-A1
310-B1
310-A6
310-A5
310-A4
310-A7
DB MACK
DB SRXD
311-A12
311-A10
311-A1
311-B1
311-A2
M403 DRIVE
5VDC
SGND
24VDC
PFUDB(PFU)
316A-13
316A-7
316A-10
316A-9
316A-11
PS405
5VDC
SGND
PS405
318A-1
318A-3
M403
PS405
SW405
PFUDB(LCT)

The paper tray is raised when the M403 (lift-up motor (LCT)) driving force is transmitted to the paper tray through the up/down drive wires (four for each tray).
The M403 is driven by the PFUDB (LCT) (PFU detection board (LCT)) and controlled by the PFUDB (PFU) (PFU drive board (PFU)).

1. Operation

When the SW405 (LCT tray insertion detection switch) turns ON, the M403 turns ON and raises the tray.
After the tray is raised, the PS405 (upper limit detecting sensor (LCT)) detects the upper limit of the paper in the tray. The M403 turns OFF and the tray stops.
When paper is fed the PS405 turns OFF and the tray is raised when the M402 turns ON again.
The paper tray is lowered mechanically.

2. Signals

a. Input signals

(1) PS405 (PS405 → PFUDB (LCT) → PFUDB (PFU))
Upper limit-detecting signal for paper in the LCT.
The signal is [H] when the upper limit of the paper is detected.

(2) DB MTXD (MAIN BODY → PFUDB (PFU))
The serial data line informs main body of DB operation.

(3) DB SACK (MAIN BODY → PFUDB (PFU))
This is the transmission approved signal from the main body to the DB.

b. Output signals

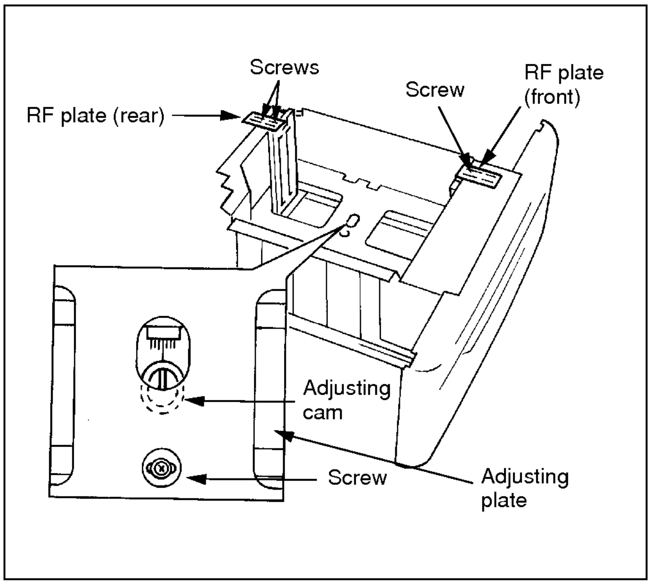
(1) M403 DRIVE (PFUDB (PFU) → PFUDB (LCT) → M403)
This is the ON/OFF control signal for M403.
[H]: OFF
[L]: ON

(2) DB MACK (PFUDB (PFU) → MAIN BODY)
This signal is the transmission approved signal from the main body to the DB.

(3) DB SRXD (PFUDB (PFU) → MAIN BODY)
The serial data line informs DB of main body operation.

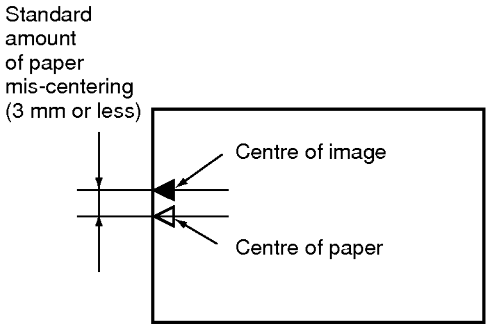
LCT ADJUSTMENT

[1] Paper Centering Adjustment

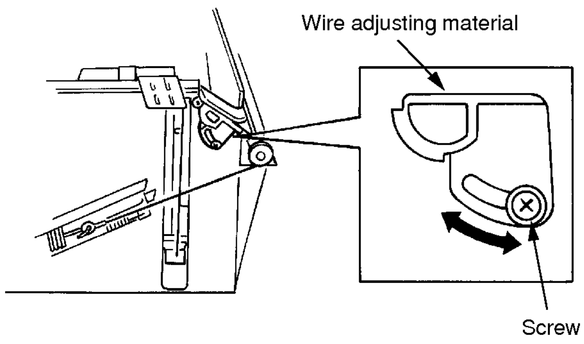

Screws
Screw
RF plate (front)
RF plate (rear)
Adjusting cam
Screw
Adjusting plate

Make a copy of the test chart and adjust so that the extent of paper mis-centering falls within the specified range.

1. **Tools required**
- Test chart
- Phillips head screwdriver
- Flat screwdriver
2. **Adjustment method**
   (1) Loosen the centering adjusting plate screw on the bottom of the tray. Loosen the screw on the front RF plate and the two screws on the rear RF plate.
   (2) Rotate the adjusting cam to move the centering adjusting plate back and forth until the extent of paper mis-centering falls within the specified range.
   (3) After adjustment is complete, be sure to tighten the screws on the centering adjusting plate and on the RF plates.


Standard amount of paper mis-centering (3 mm or less)
Centre of image
Centre of paper

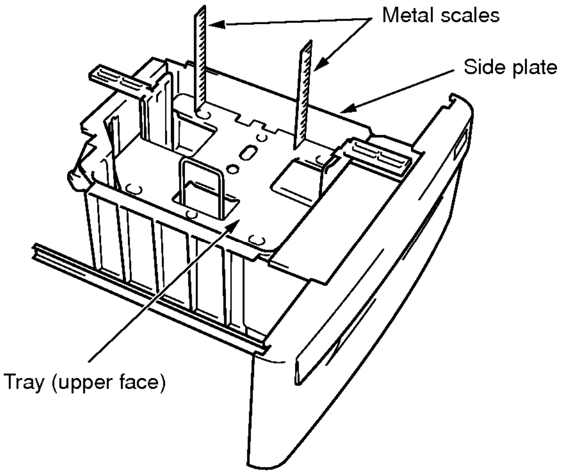
[2] Adjusting the Inclination of the Paper Tray


Wire adjusting material
Screw

If the paper tray is inclined, it may not feed paper correctly. Adjust the inclination of the paper tray so that the tray is parallel to the paper feed roller shaft.

When replacing the up/down wires, always carry out this adjustment.

1. **Tools required**
- Phillips head screwdriver
2. **Adjustment method**
   (1) Remove the front tray cover.
   (2) Loosen the wire adjusting material screw on the front part of the tray.
   (3) Move the wire adjusting material until the top surface on both sides of the paper tray is aligned with the same line in the scribed graduations as shown in the figure below.
   (4) After adjustment is complete, be sure to tighten the screw on the wire adjusting material.


Metal scales
Side plate
Tray (upper face)

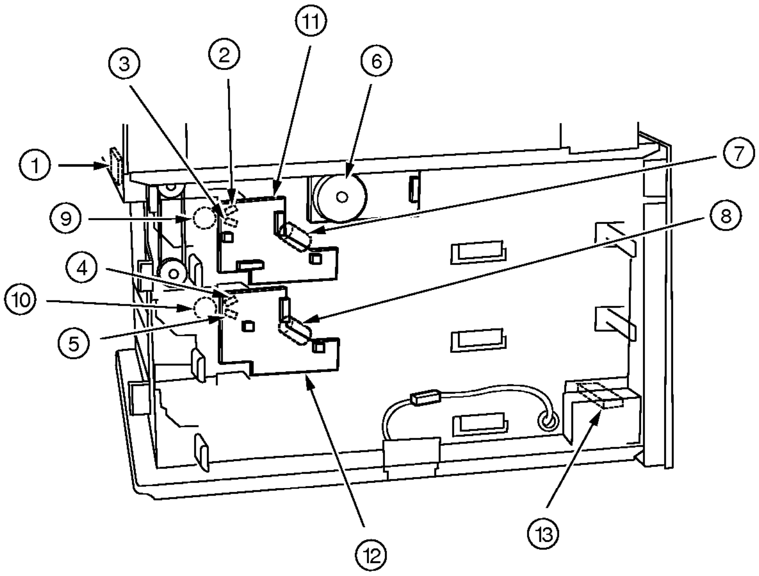
2

ELECTRICAL PARTS LIST

2. ELECTRICAL PARTS LIST

ELECTRICAL PARTS LAYOUT DIAGRAM . 2-1
CONNECTOR LAYOUT DIAGRAM 2-2
WIRING DIAGRAM 2-3
PFU DRIVE BOARD (PFU) CIRCUIT DIAGRAM 2-4

ELECTRICAL PARTS LAYOUT DIAGRAM



[1] Switches and Sensors

①	PS401	Passage-detecting sensor
②	PS402	No-paper detecting sensor (PFU)
③	PS403	Upper limit-detecting sensor (PFU)
④	PS404	No-paper detecting sensor (LCT)
⑤	PS405	Upper limit-detecting sensor (LCT)

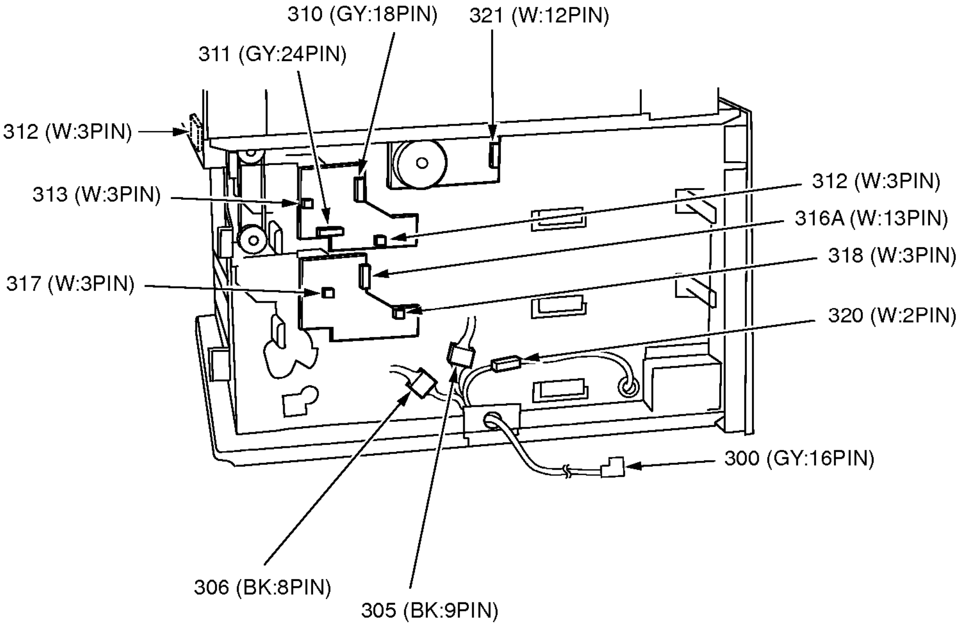
[2] Loads

⑥	M401	Paper feed motor
⑦	M402	Lift-up motor (PFU)
⑧	M403	Lift-up motor (LCT)
⑨	SD401	Paper feed solenoid (PFU)
⑩	SD402	Paper feed solenoid (LCT)

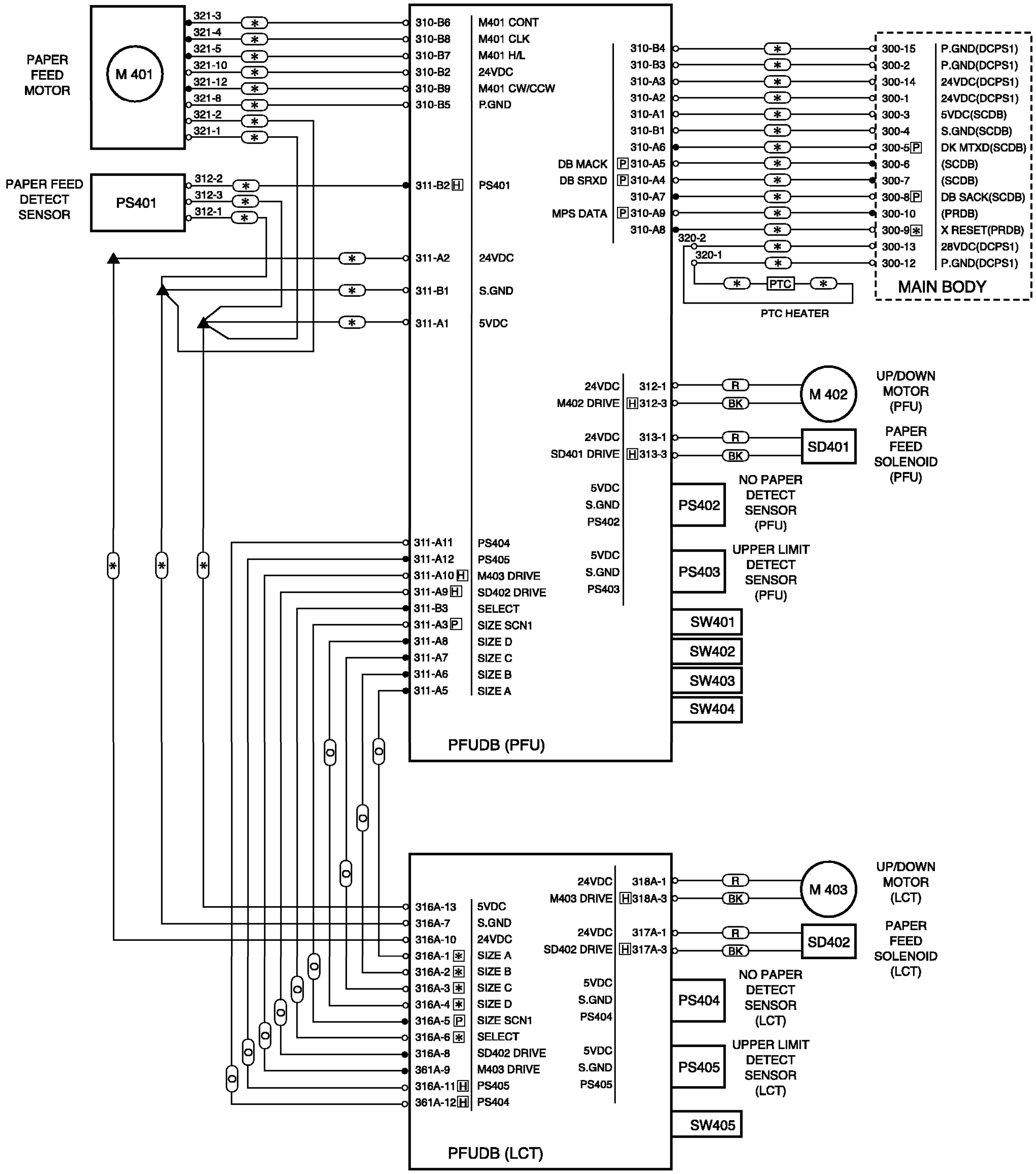
[3] Boards and Others

⑪	PFUDB (PFU)	PFU drive board (PFU)
⑫	PFUDB (LCT)	PFU drive board (LCT)
⑬	PTC	Internal heater

CONNECTOR LAYOUT DIAGRAM

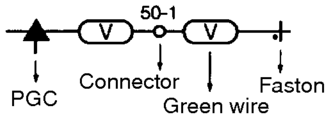

310 (GY:18PIN)
321 (W:12PIN)
311 (GY:24PIN)
312 (W:3PIN)
313 (W:3PIN)
312 (W:3PIN)
316A (W:13PIN)
318 (W:3PIN)
317 (W:3PIN)
320 (W:2PIN)
300 (GY:16PIN)
306 (BK:8PIN)
305 (BK:9PIN)

WIRING DIAGRAM


PAPER FEED MOTOR
M 401
321-3
321-4
321-5
321-10
321-12
321-8
321-2
321-1
PAPER FEED DETECT SENSOR
PS401
312-2
312-3
312-1
310-B6 M401 CONT
310-B8 M401 CLK
310-B7 M401 H/L
310-B2 24VDC
310-B9 M401 CW/CCW
310-B5 P.GND
311-B2 PS401
311-A2 24VDC
311-B1 S.GND
311-A1 5VDC
310-B4
310-B3
310-A3
310-A2
310-A1
310-B1
310-A6
DB MACK 310-A5
DB SRXD 310-A4
310-A7
MPS DATA 310-A9
310-A8
320-2
320-1
PTC
PTC HEATER
300-15 P.GND(DCPS1)
300-2 P.GND(DCPS1)
300-14 24VDC(DCPS1)
300-1 24VDC(DCPS1)
300-3 5VDC(SCDB)
300-4 S.GND(SCDB)
300-5 DK MTXD(SCDB)
300-6 (SCDB)
300-7 (SCDB)
300-8 DB SACK(SCDB)
300-10 (PRDB)
300-9 X RESET(PRDB)
300-13 28VDC(DCPS1)
300-12 P.GND(DCPS1)
MAIN BODY
24VDC 312-1
M402 DRIVE 312-3
R
BK
M 402
UP/DOWN MOTOR (PFU)
24VDC 313-1
SD401 DRIVE 313-3
SD401
PAPER FEED SOLENOID (PFU)
5VDC
S.GND
PS402
PS402
NO PAPER DETECT SENSOR (PFU)
5VDC
S.GND
PS403
PS403
UPPER LIMIT DETECT SENSOR (PFU)
SW401
SW402
SW403
SW404
311-A11 PS404
311-A12 PS405
311-A10 M403 DRIVE
311-A9 SD402 DRIVE
311-B3 SELECT
311-A3 SIZE SCN1
311-A8 SIZE D
311-A7 SIZE C
311-A6 SIZE B
311-A5 SIZE A
PFUDB (PFU)
O
24VDC 318A-1
M403 DRIVE 318A-3
M 403
UP/DOWN MOTOR (LCT)
24VDC 317A-1
SD402 DRIVE 317A-3
SD402
PAPER FEED SOLENOID (LCT)
316A-13 5VDC
316A-7 S.GND
316A-10 24VDC
316A-1 SIZE A
316A-2 SIZE B
316A-3 SIZE C
316A-4 SIZE D
316A-5 SIZE SCN1
316A-6 SELECT
316A-8 SD402 DRIVE
361A-9 M403 DRIVE
316A-11 PS405
361A-12 PS404
5VDC
S.GND
PS404
PS404
NO PAPER DETECT SENSOR (LCT)
5VDC
S.GND
PS405
PS405
UPPER LIMIT DETECT SENSOR (LCT)
SW405
PFUDB (LCT)

How to read the diagram

1. The signals shown reflect levels present under normal idling conditions with the main switch turned ON.
2. The symbols used in this diagram are explained below.
   (1) [Explanation of symbols]:


50-1
V
V
PGC
Connector
Green wire
Faston

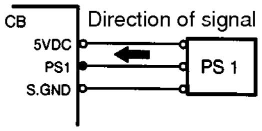
(2) [Colour codes]:

BN: Brown	B: Blue
R: Red	V: Violet
O: Orange	GY: Grey
Y: Yellow	W: White
GN: Green	BK: Black
LB: Light blue	P: Pink

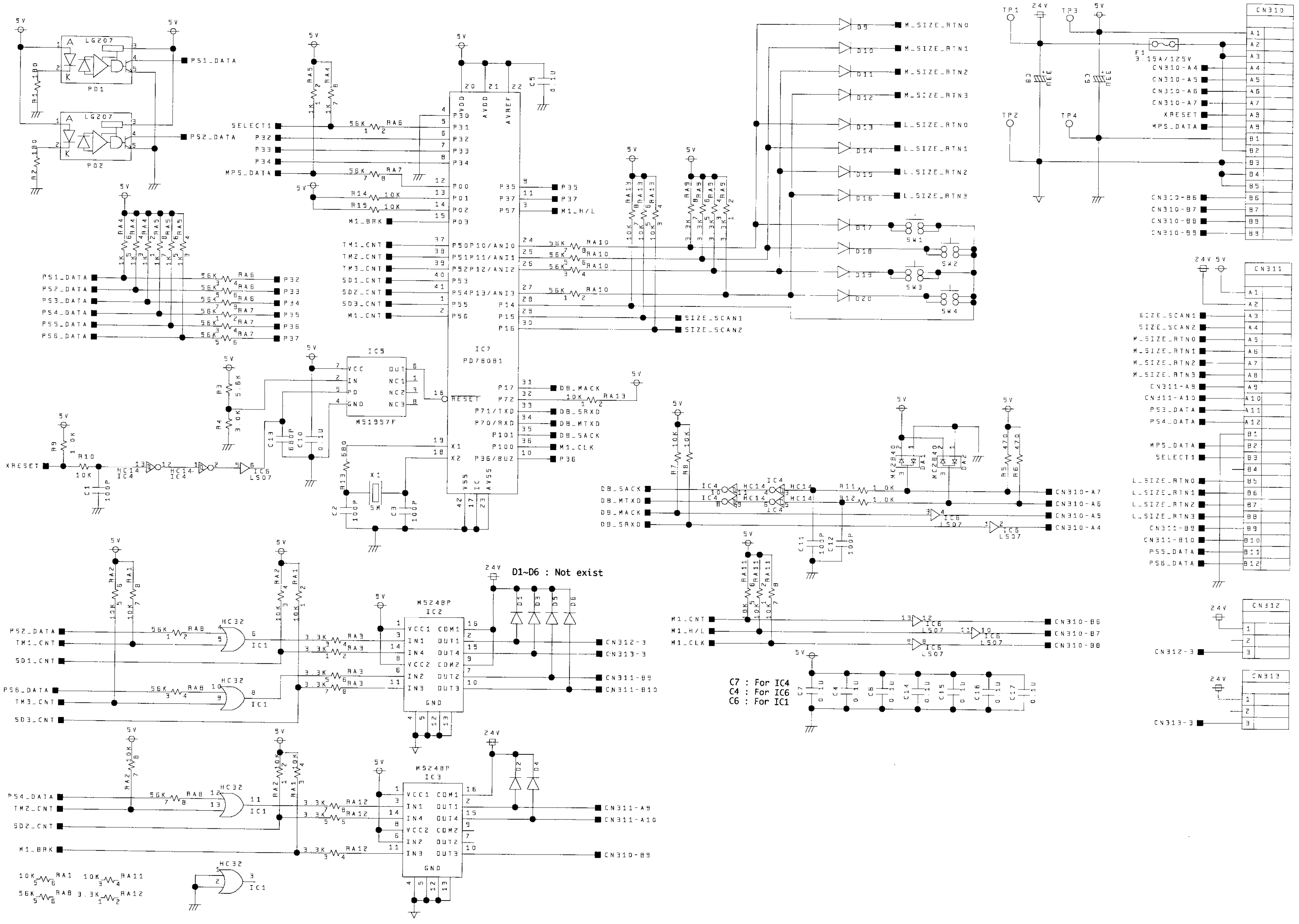
For example, "Y/GN" represents a striped pattern of yellow and green.

(3) (RC) represents a ribbon cable.

(4) Direction of signal flow:
A black dot (●) represents the destination of a signal from a connector (❍).


CB
Direction of signal
5VDC
PS1
S.GND
PS 1

PFU DRIVE BOARD (PFU) CIRCUIT DIAGRAM


LG207
PD1
PD2
PS1_DATA
PS2_DATA
SELECT1
MPS_DATA
IC5
M51957F
IC7
PD78081
XRESET
X1
IC2
M5248P
IC3
IC1
HC32
HC14
IC4
IC6
LS07
D1~D6 : Not exist
C7 : For IC4
C4 : For IC6
C6 : For IC1
SW1
SW2
SW3
SW4
M_SIZE_RTN0
M_SIZE_RTN1
M_SIZE_RTN2
M_SIZE_RTN3
L_SIZE_RTN0
L_SIZE_RTN1
L_SIZE_RTN2
L_SIZE_RTN3
SIZE_SCAN1
SIZE_SCAN2
DB_SACK
DB_MTXD
DB_MACK
DB_SRXD
M1_CNT
M1_H/L
M1_CLK
M1_BRK
CN310
CN311
CN312
CN313
F1
3.15A/125V
TP1
TP2
TP3
TP4
24V
5V

Note: 1. The circuit diagram of the PFU drive board on the DB-608 is the same as the DB-208.
2. The circuit diagram of the DB-608 PFU drive board (middle/lower) and the PFU drive board (LCT) are the same as the circuit diagram of the paper-detecting board on the main body. (Refer to paper-detecting board on main body.)

Konica

DF-311

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to the 7040 service handbook on page C-1

1. DF-311

2. DIAGRAMS

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

1

DF-311

1. DF-311

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- [4] Maintenance 1-1
- [5] Operating Environment 1-1

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This section covers the structure, functions, operation and method of disassembling and assembling the machine.

Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

DF-311 PRODUCT SPECIFICATIONS

[1] Type

Type: Sheet-through type reversible DF

[2] Functions

Originals size: A3, B4, A4, A4R, B5, B5R, A5R·

- Double sided copy of A5 originals is not possible.
- All sizes are detected automatically.
- Mixing of original sizes possible.

Kinds of originals

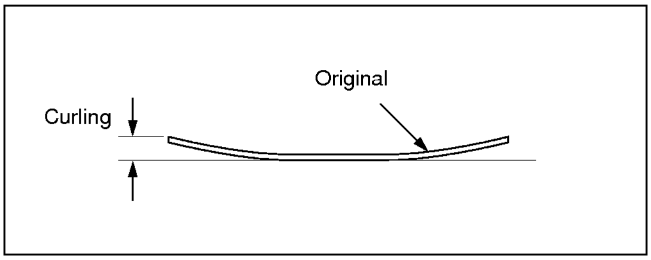
Ordinary paper: 50 - 130 g/m^2 fine quality paper

Special paper: Paper feed and conveyance ability may sometimes be inferior to those of 50 to 130 g/m^2 fine quality paper.

The following kinds of paper cannot be used:

- OHP film
- Blueprint masters
- Label paper
- Offset masters
- Pasted originals

Original curling: 10 mm Max.



Maximum number of stacked originals:
50 sheets (80g/m^2)

Original read speed (copies per minute)

Mode	Original size	Feed speed
Single-sided original to Single-sided copy	A4	40
Dual-sided original to duplex copy	A4	28

Original feed layout: Face-up setting, centered, U-turn feed/straight paper exit, reversal section mounted at paper exit side.

Original image read position:
At the slit glass section

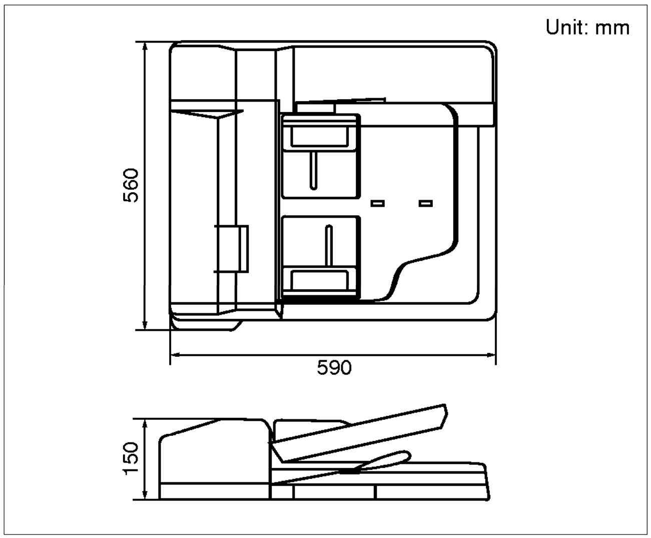
[3] Machine Data

Power source: 24 V DC / 5 V (supplied from main body)

Max. power consumption:
40 W

Weight: approx. 13.5 kg

Machine dimensions :



[4] Maintenance

Maintenance: Same as main body

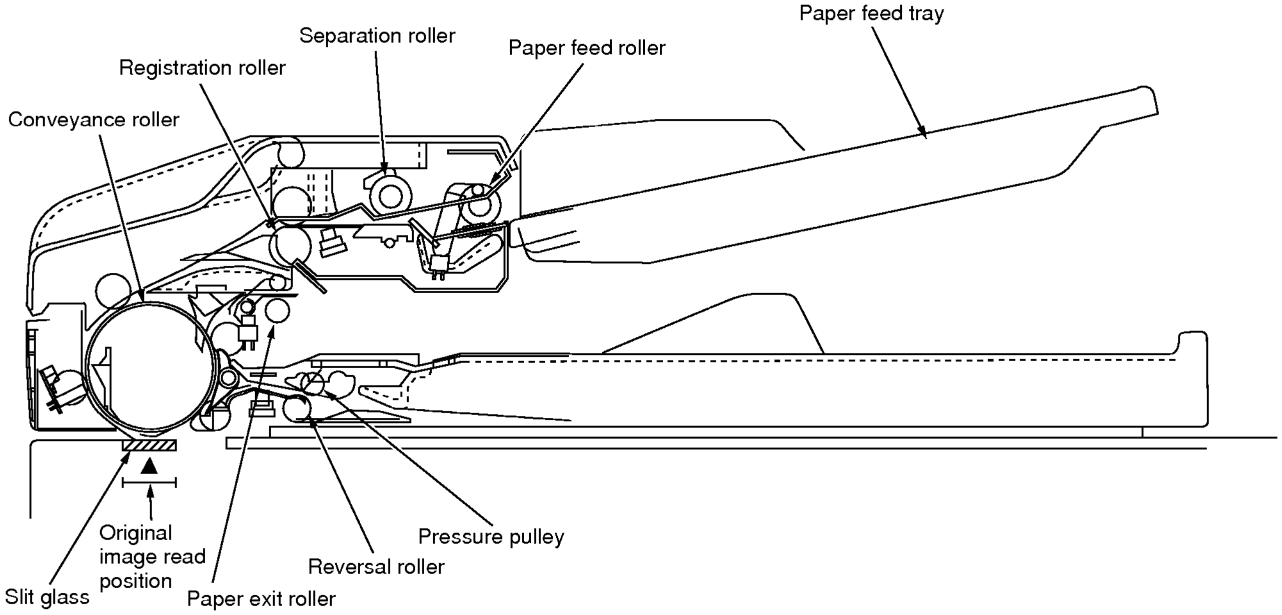
[5] Operating Environment

Temperature: 10°C ~ 33°C

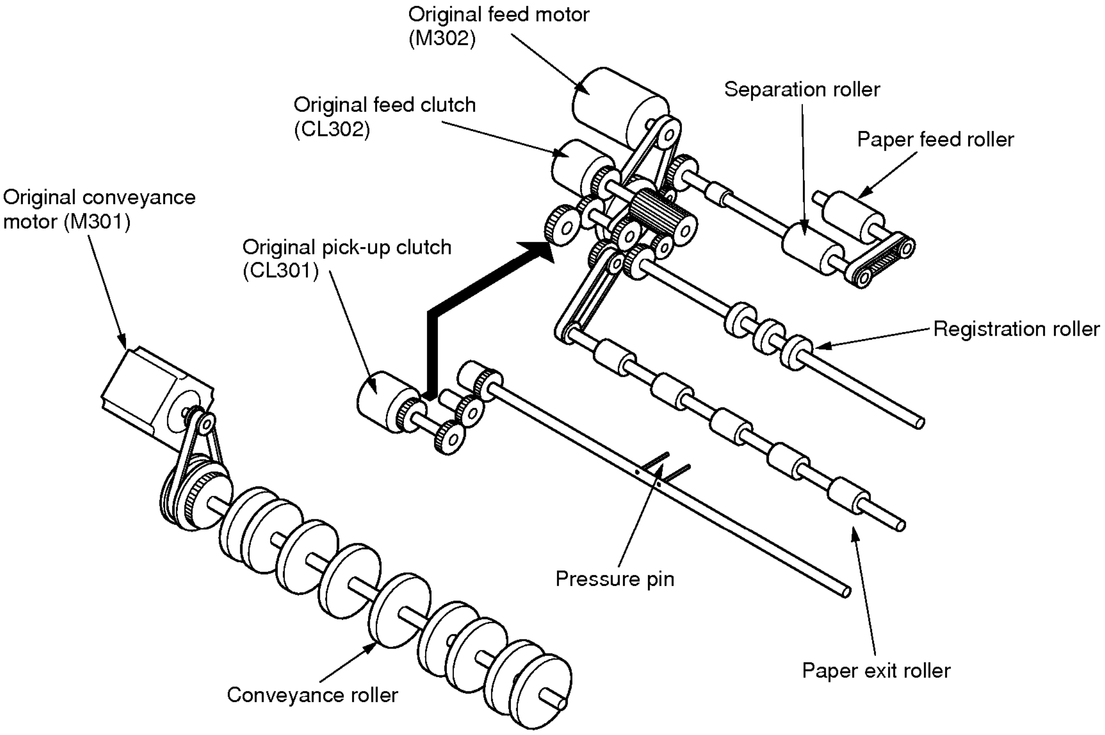
Humidity: 20% to 80%RH

Note: The contents of this manual may be changed without prior notice.

CENTER CROSS-SECTIONAL DRAWING

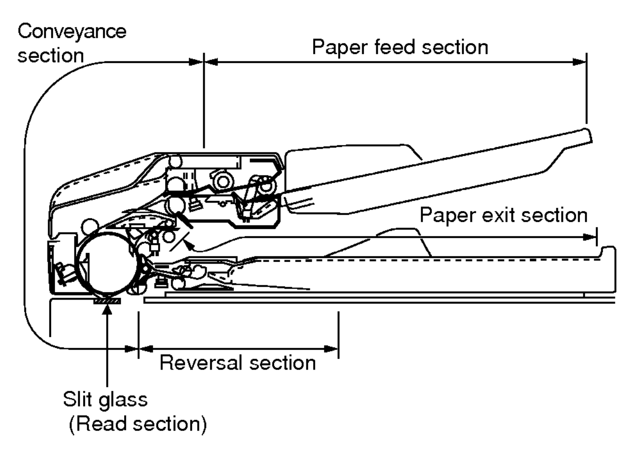

Paper feed tray
Separation roller
Paper feed roller
Registration roller
Conveyance roller
Original image read position
Pressure pulley
Reversal roller
Slit glass
Paper exit roller

DRIVE SYSTEM DRAWING


Original feed motor (M302)
Separation roller
Original feed clutch (CL302)
Paper feed roller
Original conveyance motor (M301)
Original pick-up clutch (CL301)
Registration roller
Pressure pin
Paper exit roller
Conveyance roller

ORIGINAL CONVEYANCE PROCESS

Original Conveyance Process
As the figure below shows, the DF-311 is composed of the paper feed section,
conveyance section, reversal section and paper exit section.

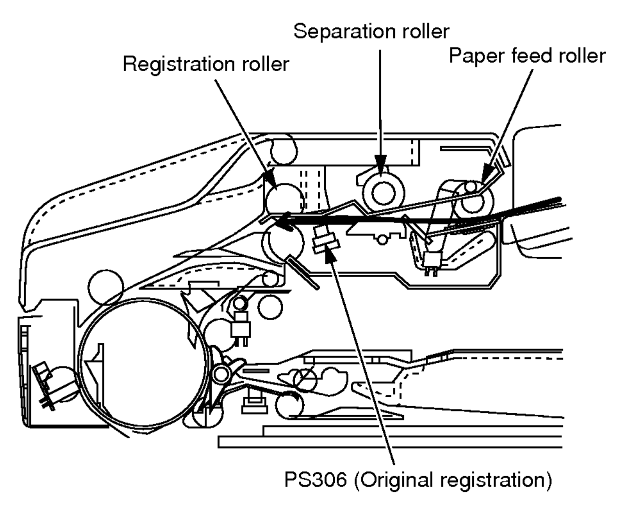

Conveyance section
Paper feed section
Paper exit section
Reversal section
Slit glass
(Read section)

The originals, which have been placed in the paper feed tray with the front side facing up, are fed starting with the topmost original. Originals that are fed are not conveyed to the original glass. Reading is carried out as the original passes by the slit glass section set midway through the conveyance path.

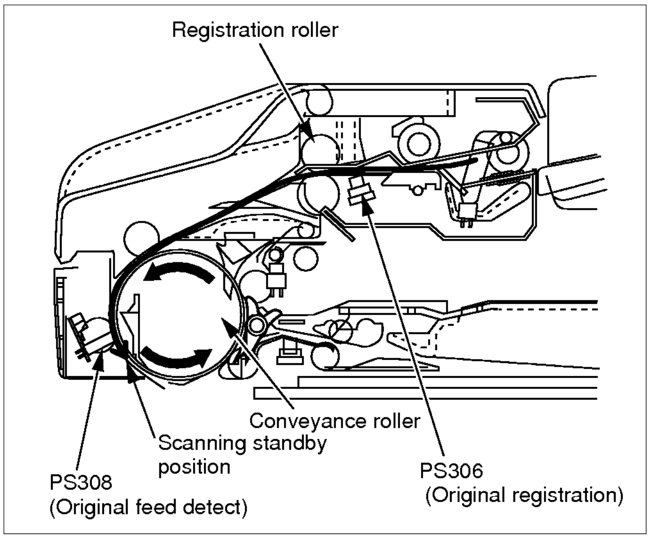
The operational modes of the DF-311 include three modes: (a) single side original copy mode, (b) double side original copy mode, (c) mixed original copy mode. The conveyance path is different for each mode.

[1] Single side original copy mode (single side to single side copy, single side to double side copy)

The originals set in the paper feed tray are fed by means of the paper feed roller and separation roller to the position where PS306 (original registration) goes on.

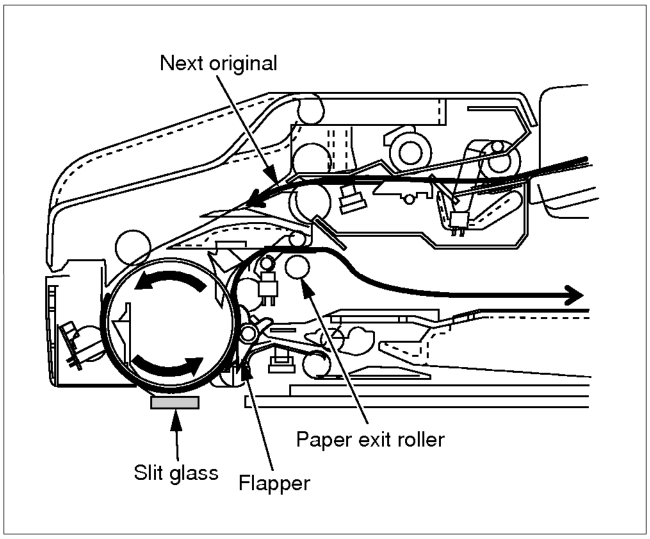

Separation roller
Registration roller
Paper feed roller
PS306 (Original registration)

When PS306 goes on, pre-feed is carried out by the registration roller and the original is conveyed to the conveyance roller. The conveyance roller conveys the original to the position where PS308 (original feed detect) goes on. The original stops at the scanning standby position.


Registration roller
Conveyance roller
Scanning standby position
PS308
(Original feed detect)
PS306
(Original registration)

When scan is started, the conveyance roller rotates again in the forward direction to convey the original. If there is another original at this time, pre-feed is carried out.

Reading of the original is carried out when the original passes over the slit glass. Originals which have been read are conveyed around the circumference of the conveyance roller by closing of the flapper and are ejected to the paper exit section via the paper exit roller.


Next original
Paper exit roller
Slit glass
Flapper

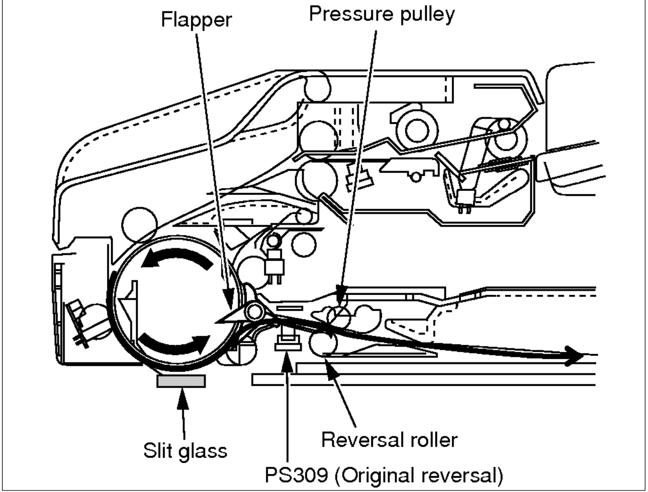
△1 [2] Double side original copy mode

(double side to single side copy, double side to double side copy)

The conveyance operation from feeding of the double sided original to the front side scanning standby position is the same as that for the single side original copy mode.

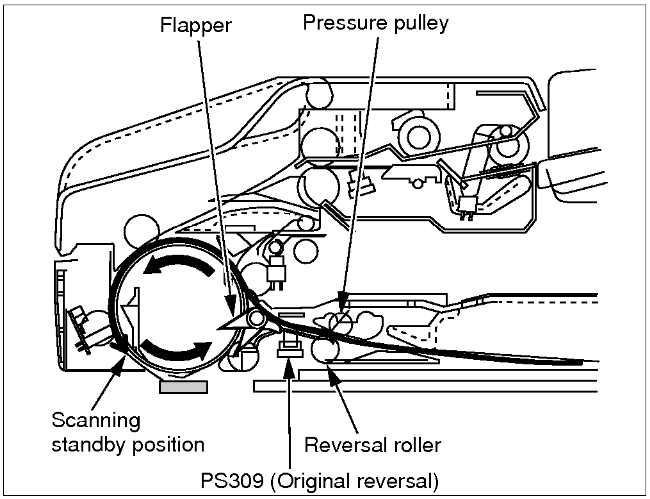
When scanning starts and reading of the front side is completed, the original is conveyed to the reversal section when the flapper opens and the paper exit path is blocked.

When PS309 (original reversal detect) detects the leading edge of the original that has been conveyed to the reversal section and goes ON, pressure is applied to the pressure pulley. As a result, the reversal roller and pressure pulley clasp the original on both sides and convey it to the inside of the reversal section.

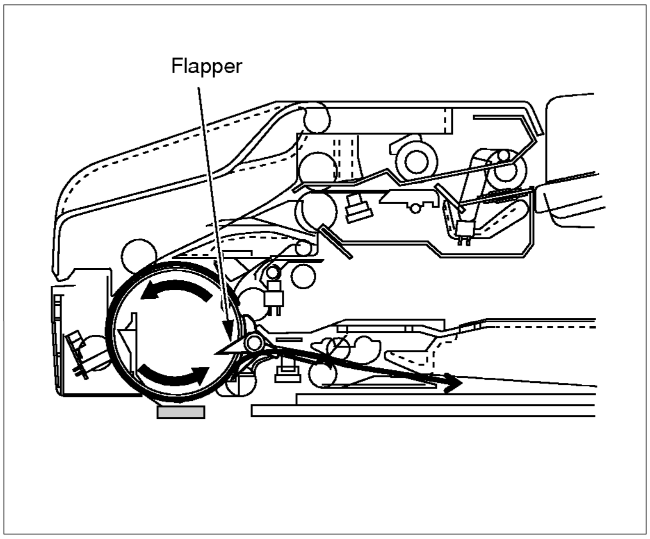

Flapper
Pressure pulley
Slit glass
Reversal roller
PS309 (Original reversal)

When PS309 detects the trailing edge of the original and goes OFF, the reversal roller rotates in the reverse direction to feed the original from the reversal section to the conveyance roller. Since the original passes over the top of the flapper at this time, the front and back sides are reversed and the original is sent to the conveyance roller.

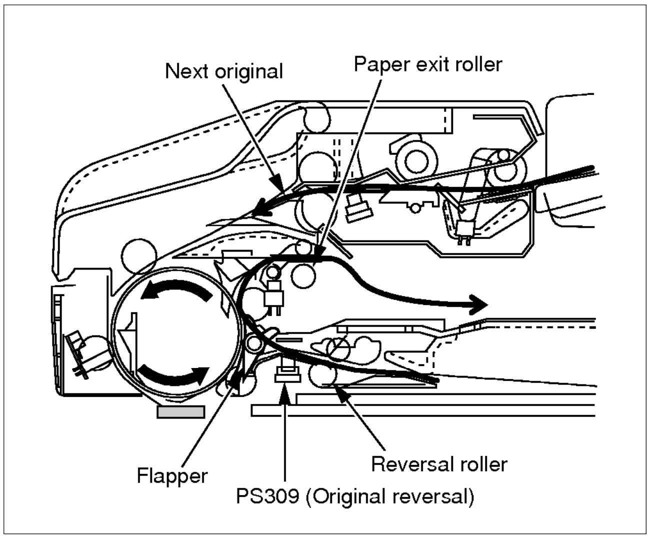
The conveyance roller conveys the original to the scanning standby position.


Flapper
Pressure pulley
Scanning standby position
Reversal roller
PS309 (Original reversal)

When scanning of the back side starts, the flapper is opened. As a result, the original which has been read is conveyed to the inside of the reversal section again.



When PS309 detects the trailing edge of the original and goes OFF, the reversal roller rotates in the reverse direction to feed the original from the reversal section to the conveyance roller. Since the flapper is closed at this time, the original is conveyed along the flapper and is ejected to the paper exit section via the paper exit roller.


Next original
Paper exit roller
Flapper
Reversal roller
PS309 (Original reversal)

[3] Mixed original copy mode

The mixed original copy mode can handle both the same series and different series of originals.

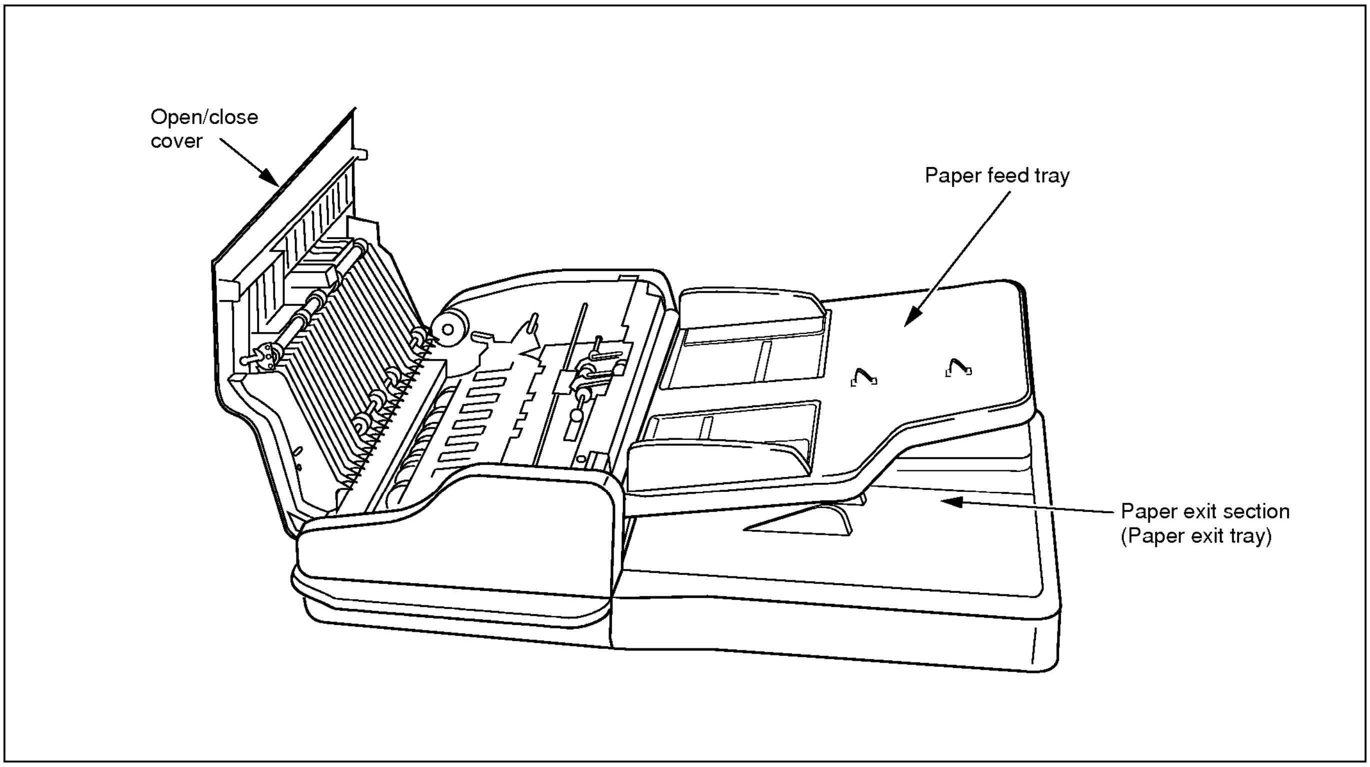
The size of the original in the conveyance direction is determined by the ON time of PS306, size detection operation take place prior to the scanning operation.

The original then stops at the scanning standby position. The subsequent operations are the same for all copy modes.

For details on the size detection operation, refer to Paper Feed/ Paper Eject section “[6] Original Size Detection Control”.

EXTERNAL SECTION

[1] Construction

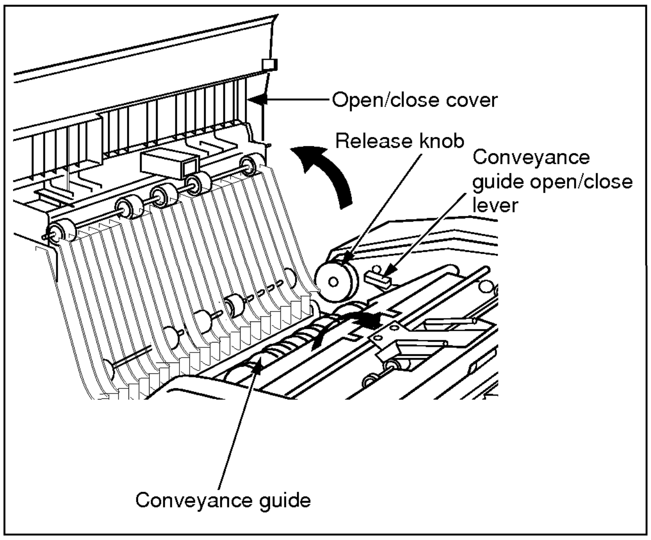

Open/close cover
Paper feed tray
Paper exit section (Paper exit tray)

[2] Mechanism

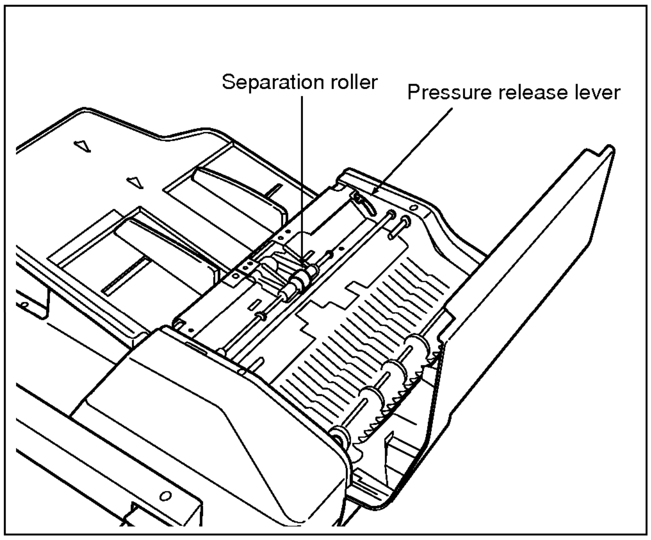
	Mechanisms	Methods
∗ 1	Jam clearance	Open/close cover Release knob Conveyance guide open/close lever Pressure release lever Platen guide

∗1: Jam clearance

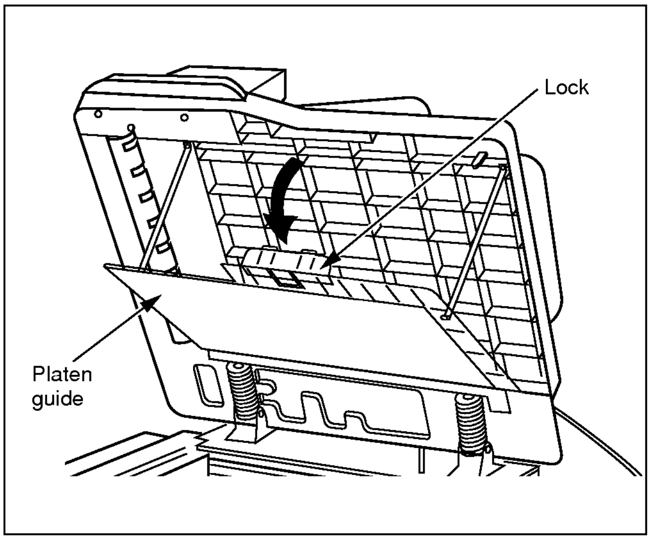
If a paper jam occurs during the feed process, open the open/close cover, raise the conveyance guide open/close lever, and rotate the release knob to remove the jammed original.


Open/close cover
Release knob
Conveyance guide open/close lever
Conveyance guide

If the jammed original is hard to remove, operate the pressure release lever to remove the pressure of the separation roller, and then remove the original.


Separation roller
Pressure release lever

If a paper jam occurs during the reversal process, the jammed sheet can be removed by opening the platen guide.



[3] Disassembly and Re-assembly

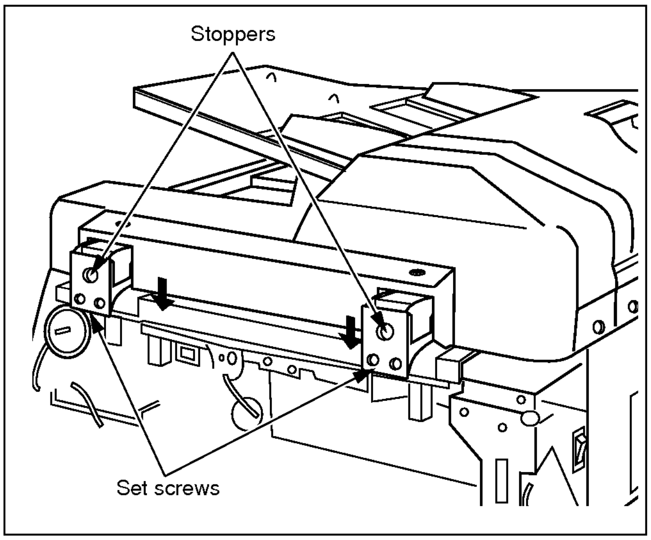
1. Removing the RADF

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Disconnect the RADF connector (CN100) from the right side of the main body.

(2) Loosen the set screws of the stoppers (one each), lower the stoppers, then tighten the screws again.

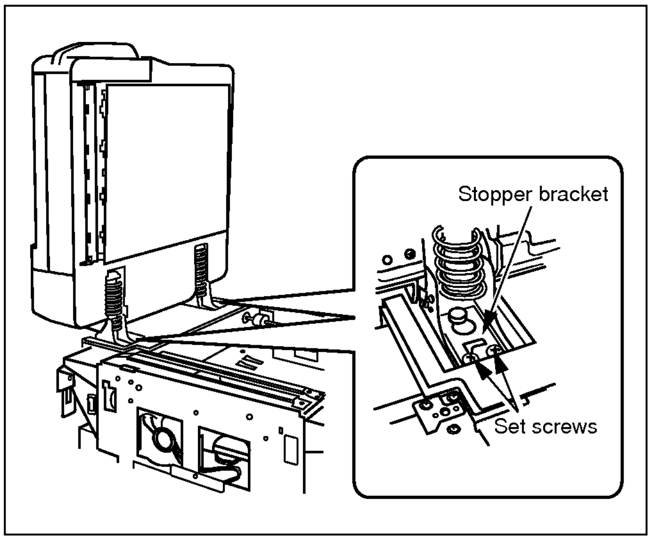


(3) Raise the RADF.

(4) Remove the two set screws holding the stopper bracket.

(5) While supporting the RADF, remove the two stopper brackets and remove the RADF.

Caution: When the stopper brackets are removed, the RADF will tend to fall towards the rear. To prevent this, be sure to support it.



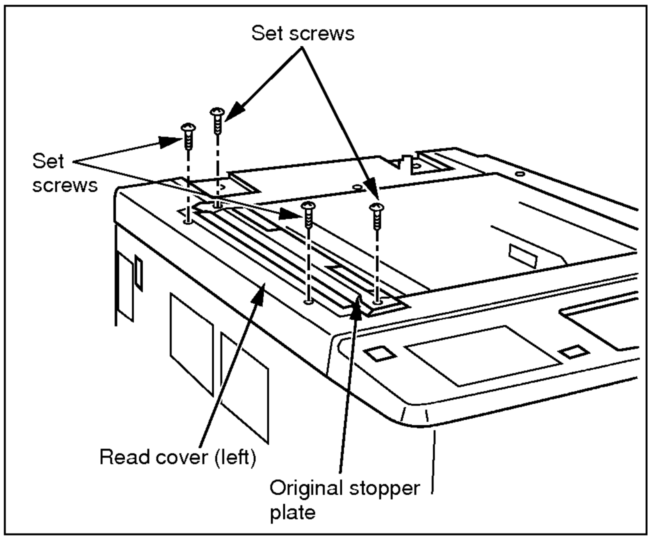
2. Re-installing the RADF

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the two set screws, then remove the original stopper plate.

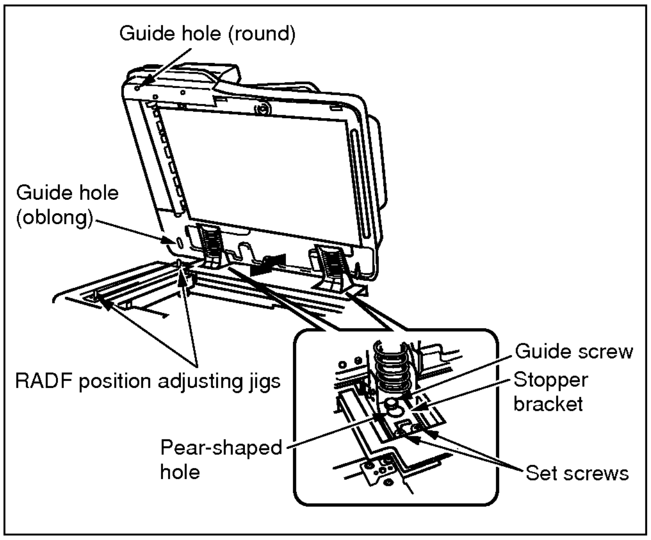
(2) Remove the two set screws, then remove the read cover (left).



(3) Attach the two RADF position adjusting jigs to the original stopper plate mounting holes.

(4) Install the RADF and provisionally fasten the two stopper brackets with the set screws.

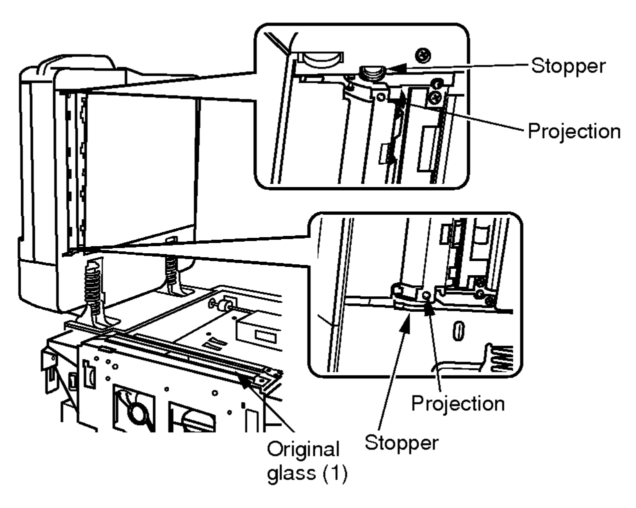
Caution: Fit the oblong cutouts in the stopper brackets onto the guide screws.


Guide hole (round)
Guide hole (oblong)
RADF position adjusting jigs
Guide screw
Stopper bracket
Pear-shaped hole
Set screws

(5) Close the RADF and slide the entire assembly back or forward so that the guide holes match the RADF position adjusting jigs.

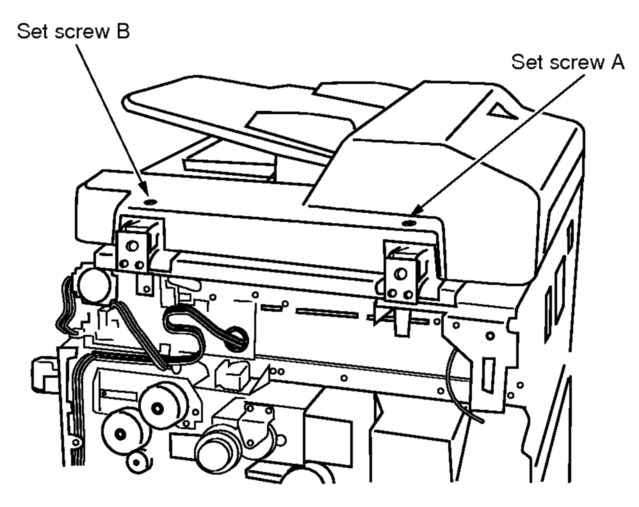
(6) When the correct position has been established, carefully open the RADF without disturbing its position and permanently tighten the stopper brackets that were provisionally fastened previously.

(7) Close the RADF and verify that the two read position stoppers both contact the original glass (1).


Stopper
Projection
Projection
Original glass (1)
Stopper

(8) Adjust set screws A and B alternately, until both stoppers contact the slit glass.

Caution: Repeat step (8) until both stoppers contact the original glass (1).

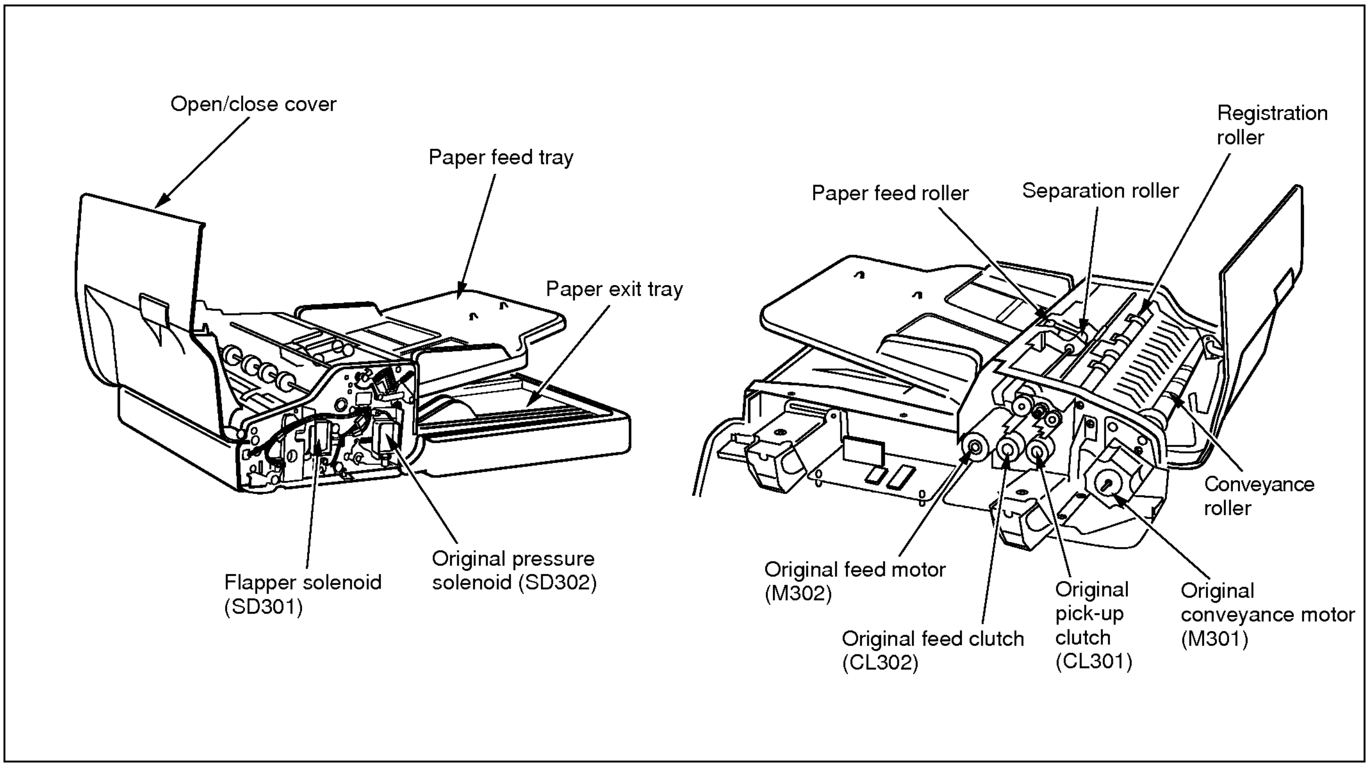

Set screw B
Set screw A

(9) Remove the two RADF position adjusting jigs and install the original stopper plate .

(10) Install the read cover (left).

PAPER FEED/PAPER EXIT SECTION

[1] Construction

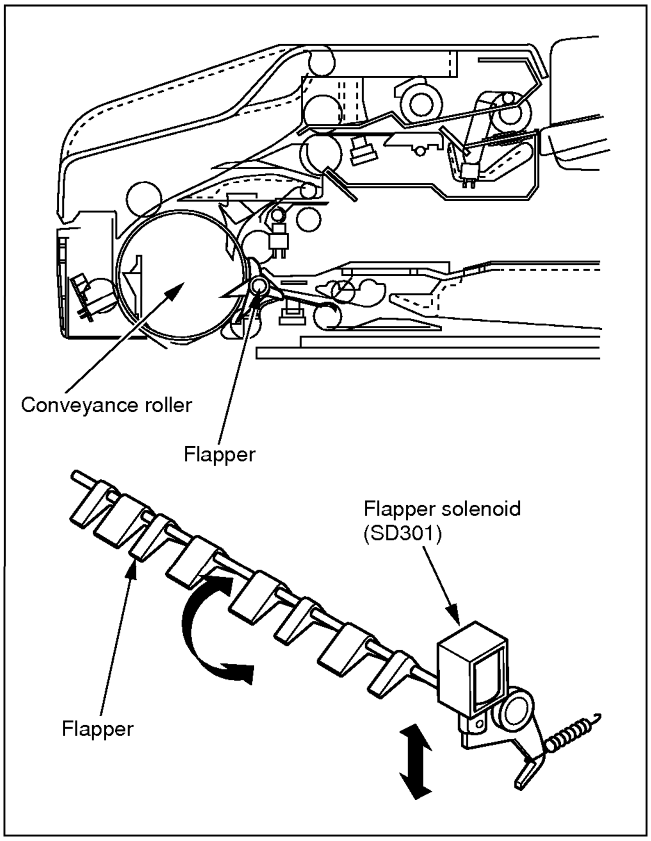

Open/close cover
Paper feed tray
Paper exit tray
Flapper solenoid (SD301)
Original pressure solenoid (SD302)
Registration roller
Paper feed roller
Separation roller
Conveyance roller
Original feed motor (M302)
Original feed clutch (CL302)
Original pick-up clutch (CL301)
Original conveyance motor (M301)

[2] Mechanism

	Mechanisms	Methods
	Paper feed	Paper feed roller
	Double feed prevention	Double feed prevention pad Separation roller
	Conveyance	Conveyance roller
∗1	Conveyance path switching	Flapper
∗2	Reversal feed	Reversal roller pressure Reversal roller turn-back

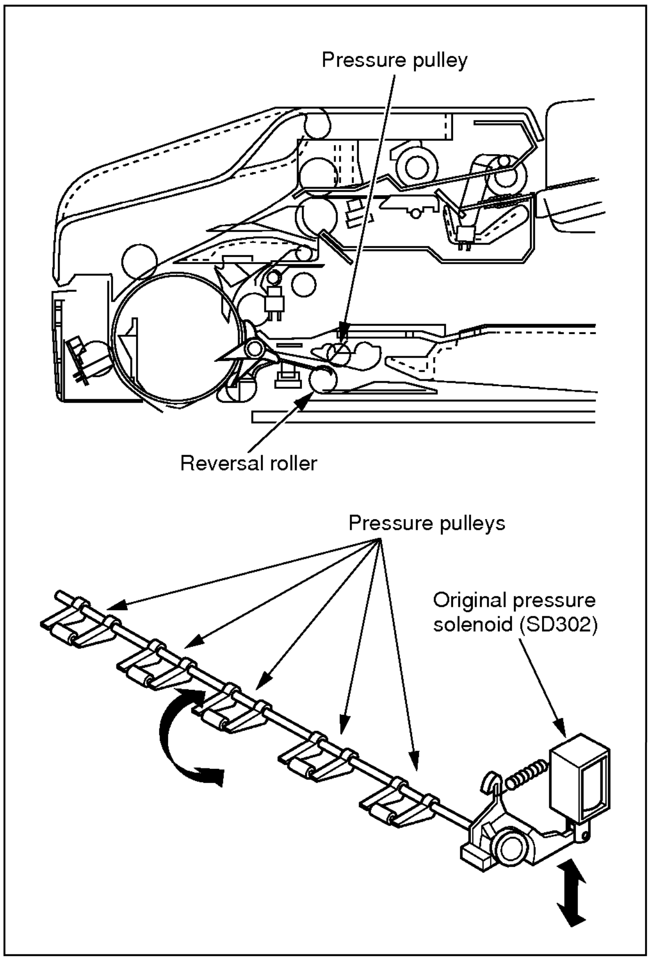
∗1: Conveyance path switching

In the double side original copying, the conveyance path after the end of reading operations differs for front side copies and back side copies. Change of the conveyance path is carried out by the flapper. Turning the flapper solenoid (SD301) ON and OFF switches between the reversal section and the paper exit section.


Conveyance roller
Flapper
Flapper solenoid (SD301)
Flapper

∗2: Reversal feed

During double side original copy operation, the original conveyed to the reversal section is held in the standby mode on the reversal roller. Reversal feed is activated by bringing the pressure pulleys into contact with the reversal roller. Pressure of the pressure pulleys is conducted by the original pressure solenoid (SD302).


Pressure pulley
Reversal roller
Pressure pulleys
Original pressure solenoid (SD302)

[3] Disassembly and Re-assembly

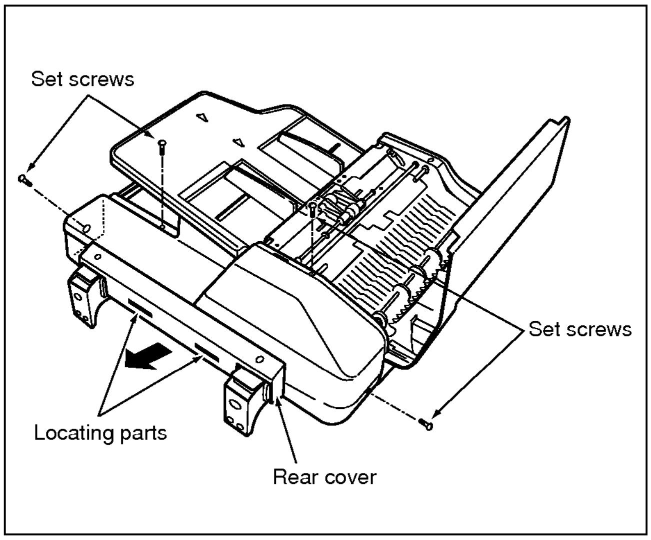
1. Removing and Re-installing the paper feed roller/separation roller

⚠ **Caution: Be sure that the power cord has been unplugged from the power outlet.**

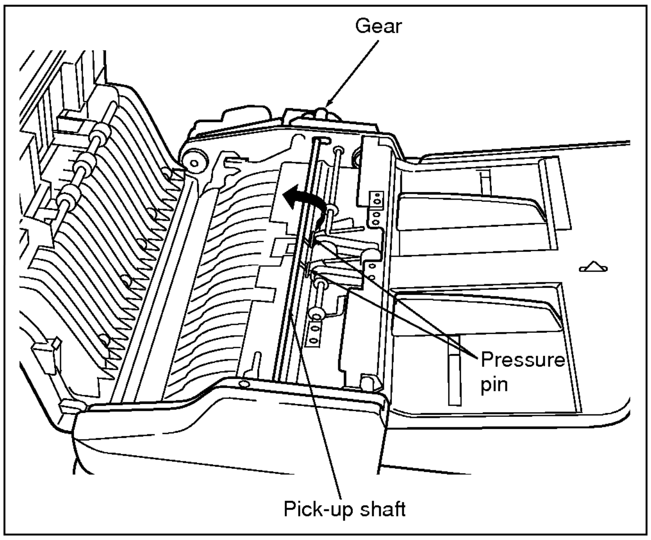
a. Procedure

(1) Open the open/close cover. Remove the four set screws to remove the rear cover.

(2) While gently pulling out at the rear to free the locating parts.

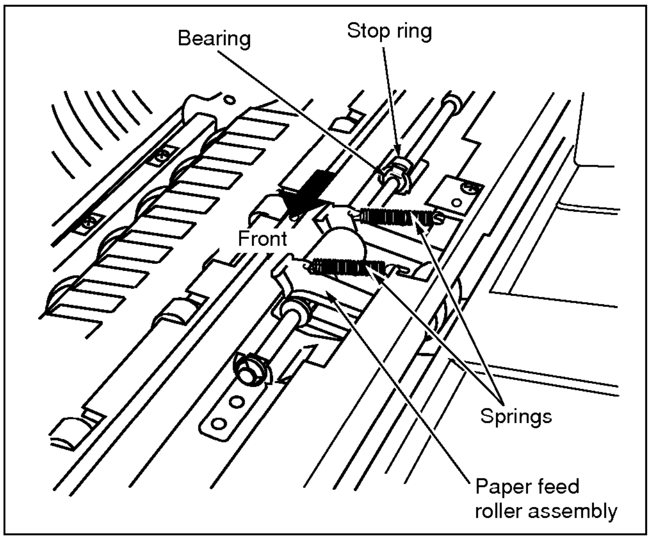

Set screws
Set screws
Locating parts
Rear cover

(3) Rotate the gear until the two pressure pins on the pickup shaft point up.


Gear
Pressure pin
Pick-up shaft

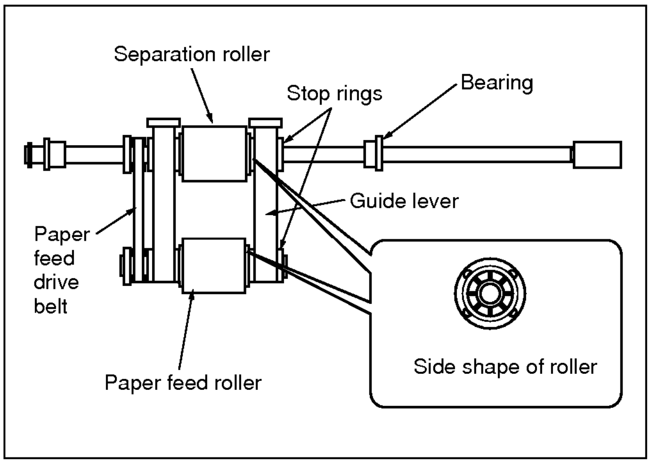
Caution: The pick-up shaft cannot be turned directly. Be sure to rotate it via the gear.

(4) Remove the two springs.
(5) Remove the stop ring and slide the bearing to the side.
(6) Slide the paper feed roller assembly towards the front side, then remove it.


Bearing
Stop ring
Front
Springs
Paper feed roller assembly

(7) Remove the bearing.
(8) Remove the two stop rings, then remove the guide lever.
(9) Remove the separation roller and paper feed roller.

Caution: When re-installing the separation roller, pay attention to correct roller orientation. (The correct orientation can be determined by looking at the side shape of the roller.)


Separation roller
Stop rings
Bearing
Guide lever
Paper feed drive belt
Paper feed roller
Side shape of roller

(10) Re-install the paper feed roller and separation roller in the opposite sequence to removal.

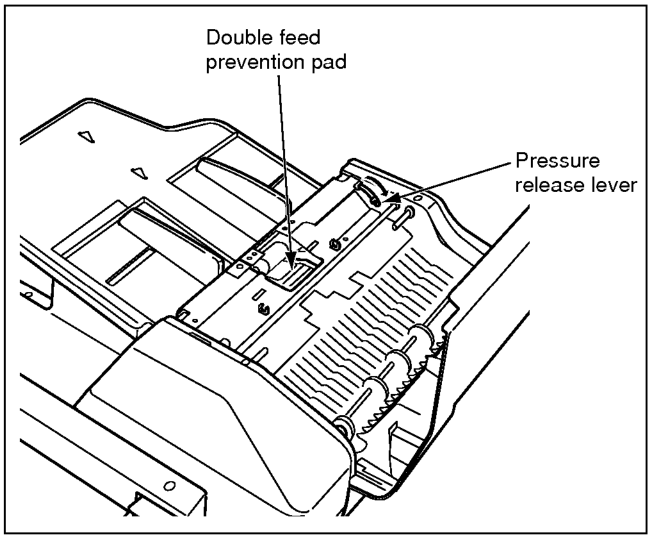
Caution: When re-installing the paper feed roller assembly, ensure that the two pressure pins on the pickup shaft point upwards.

2. Removing and Re-installing the double feed prevention pad

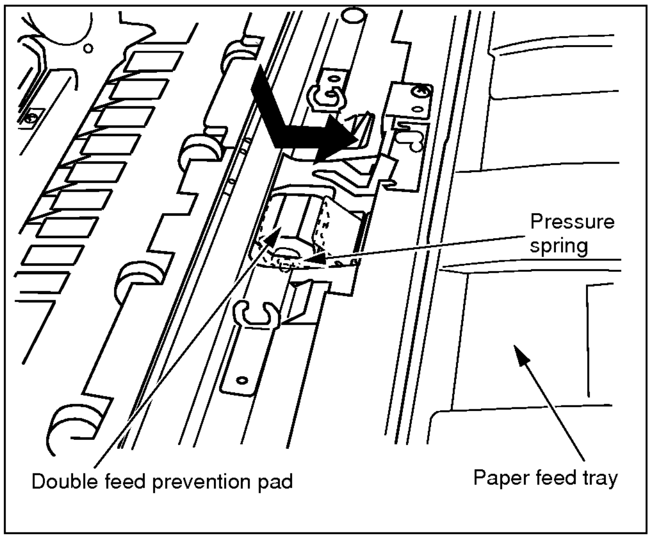
⚠ **Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the paper feed roller assembly.
(2) Push the pressure release lever so that pressure on the double feed prevention pad is released.


Double feed prevention pad
Pressure release lever

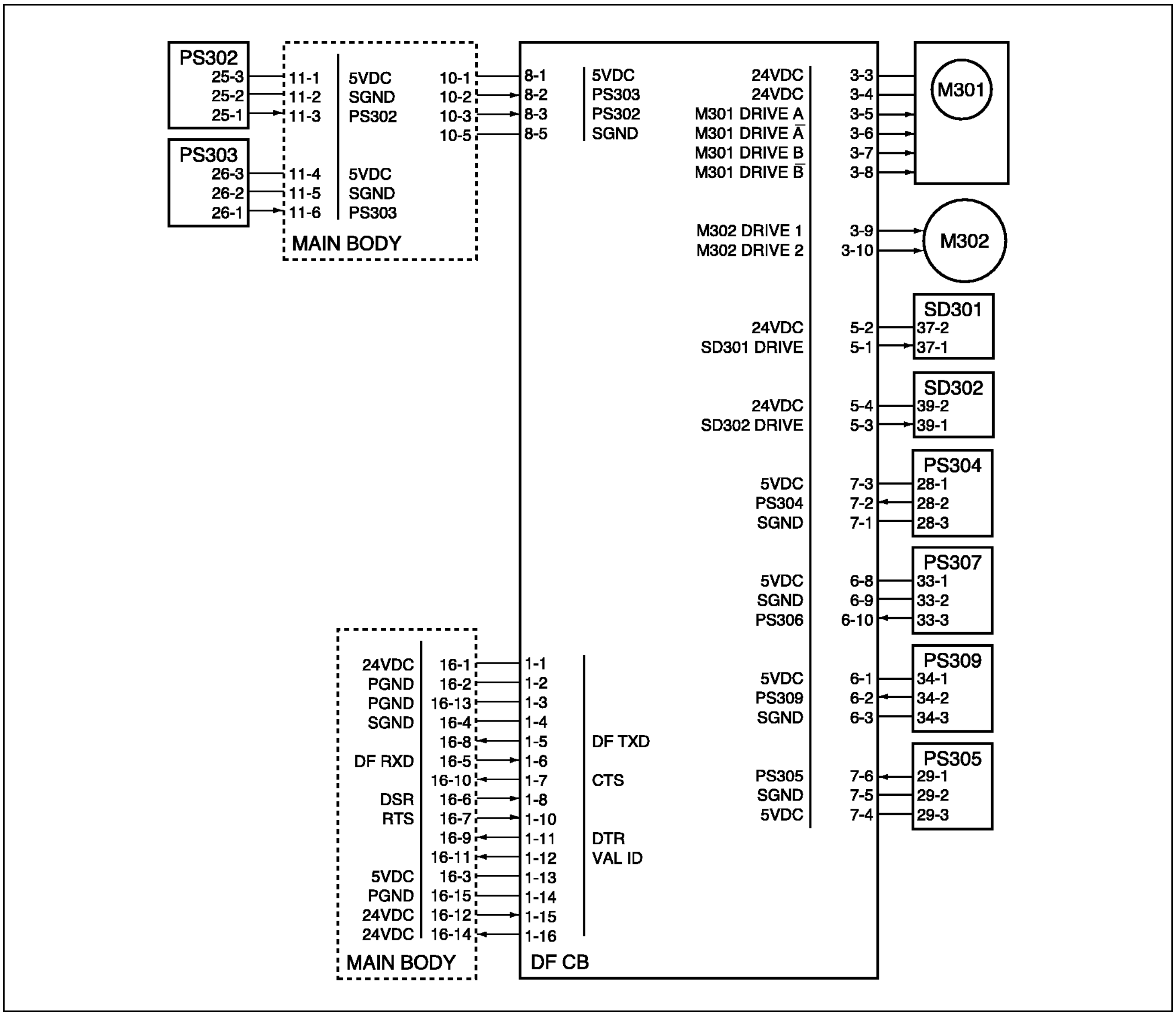
(3) Push the double feed prevention pad down, slide it towards the paper feed tray, and then remove it.


Pressure spring
Double feed prevention pad
Paper feed tray

(4) Re-install the double feed prevention pad in the opposite sequence to removal.

Caution: When re-installing the double feed prevention pad, be sure that the double feed prevention pad pressure spring is in the correct position.

[4] Paper feed/conveyance/scan control


PS302
25-3
25-2
25-1
PS303
26-3
26-2
26-1
11-1 5VDC 10-1
11-2 SGND 10-2
11-3 PS302 10-3
10-5
11-4 5VDC
11-5 SGND
11-6 PS303
MAIN BODY
8-1 5VDC
8-2 PS303
8-3 PS302
8-5 SGND
24VDC 3-3
24VDC 3-4
M301 DRIVE A 3-5
M301 DRIVE Ā 3-6
M301 DRIVE B 3-7
M301 DRIVE B̄ 3-8
M301
M302 DRIVE 1 3-9
M302 DRIVE 2 3-10
M302
24VDC 5-2
SD301 DRIVE 5-1
SD301 37-2 37-1
24VDC 5-4
SD302 DRIVE 5-3
SD302 39-2 39-1
5VDC 7-3
PS304 7-2
SGND 7-1
PS304 28-1 28-2 28-3
5VDC 6-8
SGND 6-9
PS306 6-10
PS307 33-1 33-2 33-3
5VDC 6-1
PS309 6-2
SGND 6-3
PS309 34-1 34-2 34-3
PS305 7-6
SGND 7-5
5VDC 7-4
PS305 29-1 29-2 29-3
24VDC 16-1 1-1
PGND 16-2 1-2
PGND 16-13 1-3
SGND 16-4 1-4
16-8 1-5 DF TXD
DF RXD 16-5 1-6
16-10 1-7 CTS
DSR 16-6 1-8
RTS 16-7 1-10
16-9 1-11 DTR
16-11 1-12 VAL ID
5VDC 16-3 1-13
PGND 16-15 1-14
24VDC 16-12 1-15
24VDC 16-14 1-16
MAIN BODY
DF CB

Paper feed takes place by transmitting the drive force of motor M302 (original feed) to the paper feed roller and separation roller. Conveyance takes place by transmitting the drive force of motor M301 (original conveyance) to the conveyance roller. M301 and M302 are controlled by the DF CB (DF control board).

1. Operation

a. Sensor adjustment when the power is ON.

When SW2 (sub-power) is ON, a sensitivity PS306 (original registration) and PS308 (original feed detect) is adjusted automatically. However, if the RADF open/close cover is open or an original is inside of the RADF, there will be no automatic adjustment.

b. Original pressure operation

When a control signal from the main body is received, CL301 (original pickup) goes ON, and after the specified time M302 starts to rotate in the forward direction. This causes the paper feed roller to be lowered, applying pressure to the original.
After the specified time, M302 and CL301 go OFF, but the pressure on the original is maintained.

c. Paper feed operation

When CL302 (original feed) goes ON, the driving force of M302 is transmitted to the paper feed roller and the separation roller.

CL302 goes ON at the same time as M302 performs forward rotation. When M302 switches from forward to reverse rotation, paper feed starts.

When PS306 (original registration) goes ON, the reverse rotation of M302 is switched OFF after the specified time.

d. Pre-feed of first sheet

When the reverse rotation of M302 stops, the motor starts again to rotate in forward direction after the specified time. This causes the original to be moved to the conveyance roller.

At the specified time after forward rotation of M302 has started, M301 (original conveyance) goes ON and moves the original from the conveyance roller to the scanning standby position.

When PS308 (original feed detect) detects the leading edge of the original and turns ON, CL302 and M302 go OFF. After the specified time, M301 slows down and then goes OFF. At this point, the original still moves a small distance further due to the inertia of the conveyance roller and then stops. This is the scanning standby position.

e. Pre-feed of second and further sheets

The forward rotation of M302 starts the pre-feed process of the following original, but because the motor immediately goes OFF, the original temporarily stops before reaching the conveyance roller. When M301 begins the scanning operation, the forward rotation of M302 starts again. Pre-feed of the original then is carried out while the preceding original is being scanned.

f. Scanning operation (except last original)

At the specified time after M301 goes OFF, it goes ON again and conveys the original over the slit glass area of the main body, where scanning is performed.

When PS306 detects the trailing edge of the original that is being scanned and goes OFF, CL302 again goes ON and the feed operation of the next original starts.

g. Scanning operation (last original)

During scanning, when M301 is ON and one of the sensors PS302 (original size detect 1), PS303 (original size detect 2), or PS305 (no original detect) goes OFF, the original currently being scanned is the last one.

A sensor that is used to judge the last original differs depending on the original size.

When PS307 (original exit detect) goes OFF, M301 also is switched OFF after the specified time.

h. Original pressure release

When M301 completes the scanning operation for the last original and goes OFF, CL301 and M302 go ON which causes the original pressure to be released. After the specified time, CL301 and M302 go OFF.

2. Signals

a. Input signals

(1) PS302 (PS302 → PTDB → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(2) PS303 (PS303 → PTDB → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(3) PS304 (PS304 → DF CB)
M301 encoder surface slit detection signal
[L]: Slit is not detected
[H]: Slit is detected

(4) PS305 (PS305 → DF CB)
No original detection signal at the paper feed tray
[L]: Original is detected
[H]: Original is not detected

(5) PS306 (PS306 → DF CB)
Original detection signal at the conveyance roller entrance section
[L]: Original is detected
[H]: Original is not detected

(6) PS307 (PS307 → DF CB)
Original detection signal at the paper exit section
[L]: Original is detected
[H]: Original is not detected

(7) PS308 A, B (PS308 → DF CB)
Original detection signal at the pre-scanning standby position
[L]: Original is detected
[H]: Original is not detected

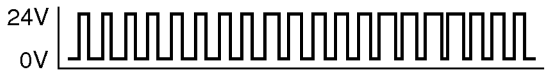
(8) DF RXD (MAIN BODY → DF CB)
Serial data line for transmitting operation status information from control board in main body to RADF.

(9) DSR (MAIN BODY → DF CB)
Send request from main body to RADF.

(10) RTS (MAIN BODY → DF CB)
Send enable from main body to RADF.

b. Output signals

(1) M301 DRIVE A, $\overline{A}$, B, $\overline{B}$ (DF CB → M301)
M301 (original conveyance) ON/OFF drive signal



(2) M302 DRIVE 1, 2 (DF CB → M302)
M302 drive signal
M302 rotation direction is controlled by switching the current direction of these two signals.

State	M302 DRIVE 1	M302 DRIVE 2
Forward rotation	H	L
Reverse rotation	L	H
Stop	L	L

(3) CL301 DRIVE (DF CB → CL301)
CL301 (original pick-up) ON/OFF drive signal
[L]: CL301 ON
[H]: CL301 OFF

(4) CL302 DRIVE (DF CB → CL302)
CL302 (original feed) ON/OFF drive signal
[L]: CL302 ON
[H]: CL302 OFF

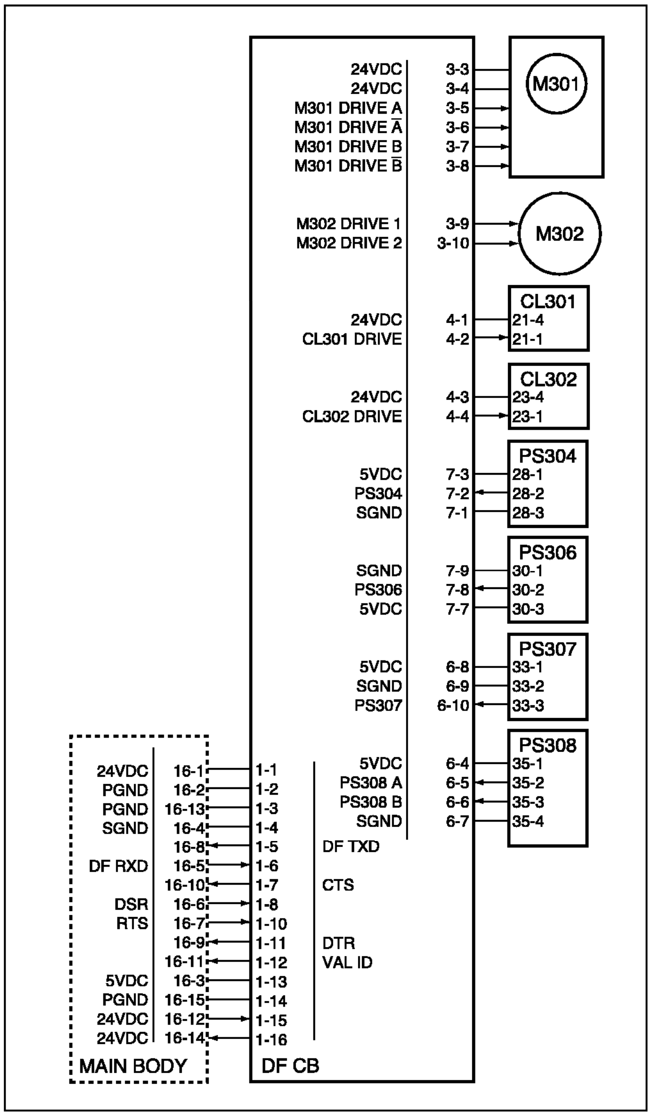
(5) DF TXD (DF CB → MAIN BODY)
Serial data line for transmitting operation status information from RADF to main body control board.

(6) DTR (DF CB → MAIN BODY)
Send request from RADF to main body.

(7) CTS (DF CB → MAIN BODY)
Send enable from RADF to main body.

(8) VAL ID (DF CB → MAIN BODY)
Image forming start signal

[5] Paper exit/reverse conveyance control


24VDC 3-3
24VDC 3-4
M301 DRIVE A 3-5
M301 DRIVE $\overline{A}$ 3-6
M301 DRIVE B 3-7
M301 DRIVE $\overline{B}$ 3-8
M301
M302 DRIVE 1 3-9
M302 DRIVE 2 3-10
M302
24VDC 4-1 21-4
CL301 DRIVE 4-2 21-1
CL301
24VDC 4-3 23-4
CL302 DRIVE 4-4 23-1
CL302
5VDC 7-3 28-1
PS304 7-2 28-2
SGND 7-1 28-3
PS304
SGND 7-9 30-1
PS306 7-8 30-2
5VDC 7-7 30-3
PS306
5VDC 6-8 33-1
SGND 6-9 33-2
PS307 6-10 33-3
PS307
5VDC 6-4 35-1
PS308 A 6-5 35-2
PS308 B 6-6 35-3
SGND 6-7 35-4
PS308
24VDC 16-1 1-1
PGND 16-2 1-2
PGND 16-13 1-3
SGND 16-4 1-4
16-8 1-5 DF TXD
DF RXD 16-5 1-6
16-10 1-7 CTS
DSR 16-6 1-8
RTS 16-7 1-10
16-9 1-11 DTR
16-11 1-12 VAL ID
5VDC 16-3 1-13
PGND 16-15 1-14
24VDC 16-12 1-15
24VDC 16-14 1-16
MAIN BODY
DF CB

Paper path switching in the exit area is carried out by solenoid SD301 (flapper) which operates a flapper (gate). In duplex copy mode, the pressure pulley in the reversal section is operated by the SD302 (original pressure).

SD301 and SD302 are controlled by the DF CB (DF control board).

1. Operation

a. Sensor adjustment when the power is ON.

When SW2 (sub power) is ON, a sensitivity of PS309 (original reversal detect) is adjusted automatically. However, if the RADF open/close cover is open or an original is in the inside of the RADF, there will be no automatic adjustment.

b. Paper exit operation

In single-sided copy mode and when copying the reverse side of a sheet in duplex copy mode, SD301 is OFF and the flapper is closed. The original is therefore conveyed to the paper exit section after scanning.

c. Reversal paper exit operation

When copying the first side of a sheet in duplex copy mode, at the specified time after M301 (original conveyance) goes ON and scanning starts, SD301 goes ON and the flapper opens. This causes the original to be sent to the reversal section after scanning.

At the same time as SD301 goes ON, M302 (original feed) starts reverse rotation and the drive force is transmitted to the reversal roller.

When PS309 (original reversal detect) detects the leading edge of the original and goes ON, the SD302 goes ON after the specified time and applies pressure to the pressure pulley. As a result, the original which has been conveyed to the reversal section is caught between the reversal roller and pressure pulley, and conveyed to the inside of the reversal section.

d. Reversal feed operation

When PS309 detects the trailing edge of the original and goes OFF, both the M301 and M302 go OFF after the specified time, and conveyance operation of the original is stopped.

After a predetermined OFF interval, M302 starts reverse rotation and feeds the original to the conveyance roller side of the reversal section. At this time, PS309 again goes ON and SD302 goes OFF after the specified time. M302 goes OFF after the specified time from PS309 goes OFF.

e. Pre-feed operation of next original when reading back side of original

When PS309 goes OFF, M301 and M302 start forward rotation after the specified time, and next original pre-feed is carried out.

2. Signals

a. Input signals

(1) PS304 (PS304 → DF CB)
M301 encoder surface slit detection signal
[L]: Slit is not detected
[H]: Slit is detected

(2) PS307 (PS307 → DF CB)
Original detection signal at the paper exit section
[L]: Original is detected
[H]: Original is not detected

(3) PS309 (PS309 → DF CB)
Original detection signal at the reversal section
[L]: Original is detected
[H]: Original is not detected

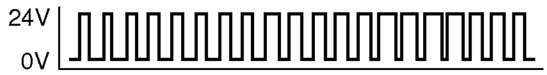
(4) DF RXD (MAIN BODY → DF CB)
Serial data line for transmitting operation status information from control board in main unit to RADF.

(5) DSR (MAIN BODY → DF CB)
Send request from main body to RADF.

(6) RTS (MAIN BODY → DF CB)
Send enable from main body to RADF.

b. Output signals

(1) M301 DRIVE A, $\overline{A}$, B, $\overline{B}$ (DF CB → M301)
M301 (original conveyance) ON/OFF drive signal



(2) M302 DRIVE 1, 2 (DF CB → M302)
M302 drive signal
M302 rotation direction is controlled by switching the current direction of these two signals.

State	M302 DRIVE 1	M302 DRIVE 2
Forward rotation	H	L
Reverse rotation	L	H
Stop	L	L

(3) SD301 DRIVE (DF CB → CL301)
SD301 (flapper) ON/OFF drive signal
[L]: SD301 ON
[H]: SD301 OFF

(4) SD302 DRIVE (DF CB → SD302)
SD302 (original pressure) drive signal
[L]: SD302 ON
[H]: SD302 OFF

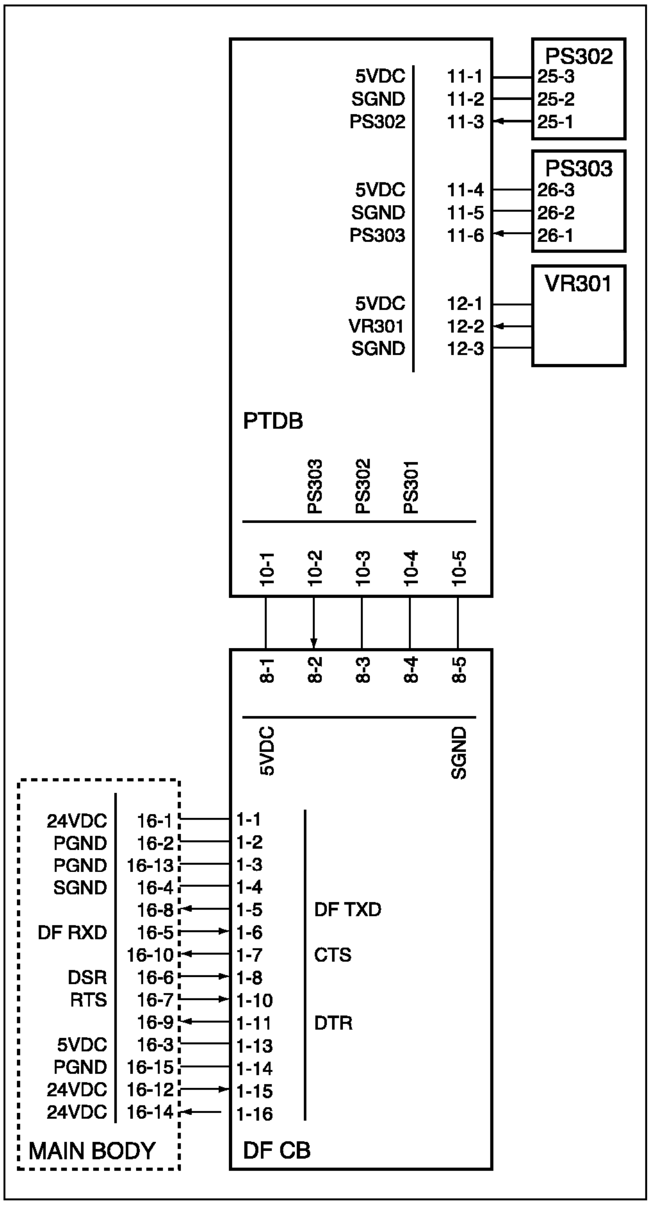
(5) DF TXD (DF CB → MAIN BODY)
Serial data line for transmitting operation status information from RADF to main body control board.

(6) DTR (DF CB → MAIN BODY)
Send request from RADF to main body.

(7) CTS (DF CB → MAIN BODY)
Send acknowledgment from RADF to main body.

(8) VAL ID (DF CB → MAIN BODY)
Image forming start signal

[6] Original size detection control


PS302
5VDC
SGND
PS302
11-1
11-2
11-3
25-3
25-2
25-1
PS303
5VDC
SGND
PS303
11-4
11-5
11-6
26-3
26-2
26-1
VR301
5VDC
VR301
SGND
12-1
12-2
12-3
PTDB
PS303
PS302
PS301
10-1
10-2
10-3
10-4
10-5
8-1
8-2
8-3
8-4
8-5
5VDC
SGND
24VDC
PGND
PGND
SGND
DF RXD
DSR
RTS
5VDC
PGND
24VDC
24VDC
16-1
16-2
16-13
16-4
16-8
16-5
16-10
16-6
16-7
16-9
16-3
16-15
16-12
16-14
1-1
1-2
1-3
1-4
1-5
1-6
1-7
1-8
1-10
1-11
1-13
1-14
1-15
1-16
DF TXD
CTS
DTR
MAIN BODY
DF CB

The size of the original placed in the paper feed tray is detected by PS302 (original size detect 1), PS303 (original size detect 2), and VR301 (original size detect).

PS302, PS303, and VR301 are controlled by the DF CB (DF control board) via the PTBD (Paper tray board).

Inside the DF CB is a non-volatile memory for recording the timing data and original size detection threshold values.

1. Operation

a. Normal copy mode

The DF CB detects the original size from a combination of the following signals.

(1) Detection of size in the direction of the drum shaft (width)
The guide plate is connected to the VR301 and the resistance value differs according to the position of the guide plate. Thus, it is possible to detect the width measurements of the original.

(2) Detection of size in the direction of original feed
There is detection of the length measurements of the original according to a combination of ON/OFF of PS302 and PS303.

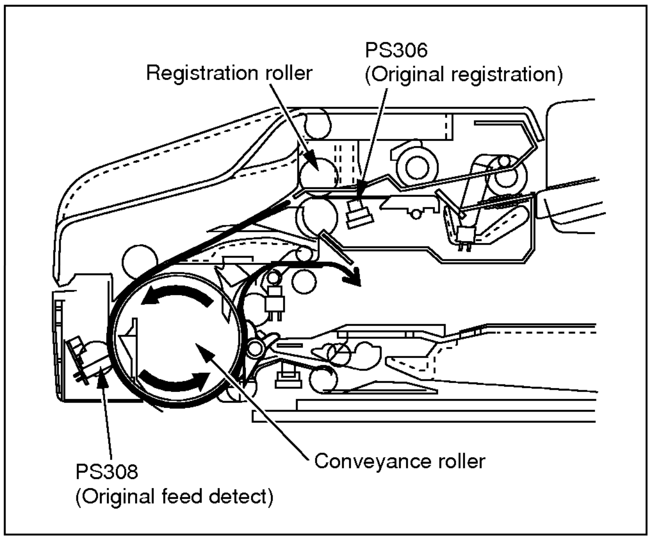
b. original size detection in the mixed original copy mode.

Judgment of size in the mixed original copy mode is carried out under the following conditions.

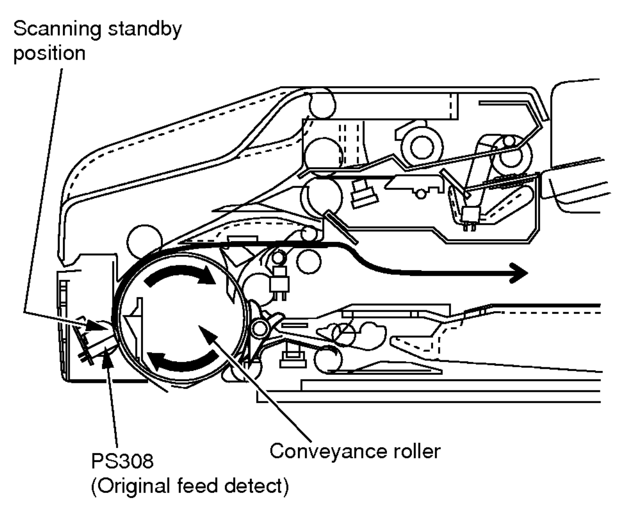
(1) Size detection in the direction of drum shaft (width).
There is judgment of the width measurements of the largest original of the mixed originals by means of the guide plate position.

(2) Detection of size in the conveyance direction of the original.
There is judgment of the length measurements of the originals according to the time when PS306 (original registration) goes ON after feeding of the original from the registration roller.

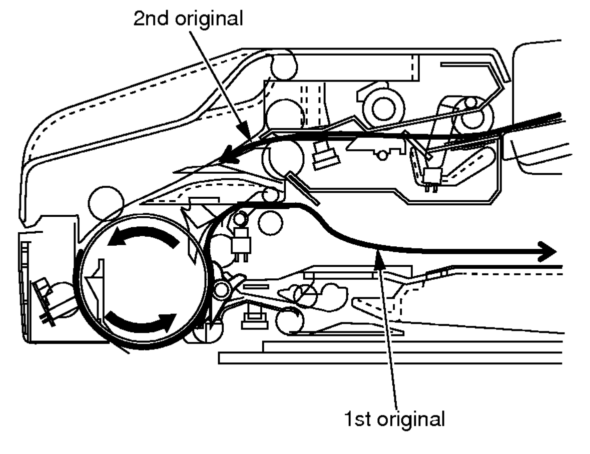
(3) Size detection operation according to the direction of original feed.
When original pre-feed is started with the registration roller, M301 (original feed detect) rotates forward after the specified time from PS306 goes ON and the original is conveyed to the paper exit section. The forward rotation of the M301 is continued until PS306 detects the trailing edge of the original and goes OFF. At this time, depending on the ON time of PS306, there is detection of the size of the original feed direction.


Registration roller
PS306
(Original registration)
PS308
(Original feed detect)
Conveyance roller

M301 rotates in the reversal direction after the specified time from PS306 goes OFF and returns the leading edge of the original that has been conveyed to the paper exit section to the scanning standby position. The trailing edge of the original which has been returned is conveyed to the exit section due to the configuration of the conveyance section. The reversal rotation of the M301 stops after the specified time from PS308 (original feed detect) detects the leading edge of the original and goes ON.



Following this, there is the same reading as in the normal mode (scanning operation).



The original size detection operation with the second original and subsequent originals has a different start timing for the single side mode and double side mode.

Single side mode: At time of starting scanning operation of former original.

Double side mode: At time of starting scanning operation of former original back side.

c. List of the possible mixing of sizes.

(□ : Same size ○ : Same series ◎ : Different series × : Mixing not possible – : Setting not possible.)

(1) AB series

		Standard original (maximum original size that is detected with the guide plate).								
		A3	A4	B4	B5	A4R	A5	B5R	A5R	B6R
Other originals	A3	□	○	–	–	–	–	–	–	–
	A4	○	□	–	–	–	–	–	–	–
	B4	◎	◎	□	○	–	–	–	–	–
	B5	◎	◎	○	□	–	–	–	–	–
	A4R	◎	◎	◎	◎	□	○	–	–	–
	A5	◎	◎	◎	◎	○	□	–	–	–
	B5R	×	×	◎	◎	◎	◎	□	–	–
	A5R	×	×	×	×	×	×	◎	□	–
	B6R	×	×	×	×	×	×	×	◎	□

(2) Inch series

		Standard original (maximum original size that is detected with the guide plate).					
		11×17	8.5×11	8.5×14	8.5×11R	8.5×5.5	8.5×5.5R
Other originals	11×17	□	○	–	–	–	–
	8.5×11	○	□	–	–	–	–
	8.5×14	◎	◎	□	○	○	–
	8.5×11R	◎	◎	○	□	○	–
	8.5×5.5	◎	◎	○	○	□	–
	8.5×5.5R	×	×	×	×	×	□

2. Signals

a. Input signals

(1) PS302 (PS302 → PTBD → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(2) PS303 (PS303 → PTBD → DF CB)
Original length detection signal
[L]: Original is detected
[H]: Original is not detected

(3) VR301 (VR301 → PTBD → DF CB)
Original width detection signal

(4) DF RXD (MAIN BODY → DF CB)
Serial data line for transmitting operation status information from control board in main body to RADF.

(5) DSR (MAIN BODY → DF CB)
Send request from main body to RADF.

(6) RTS (MAIN BODY → DF CB)
Send acknowledgment from main body to RADF.

b. Output signals

(1) DF TXD (DF CB → MAIN BODY)
Serial data line for transmitting operation status information from RADF to main body control board.

(2) DTR (DF CB → MAIN BODY)
Send request from RADF to main body.

(3) CTS (DF CB → MAIN BODY)
Send enable from RADF to main body.

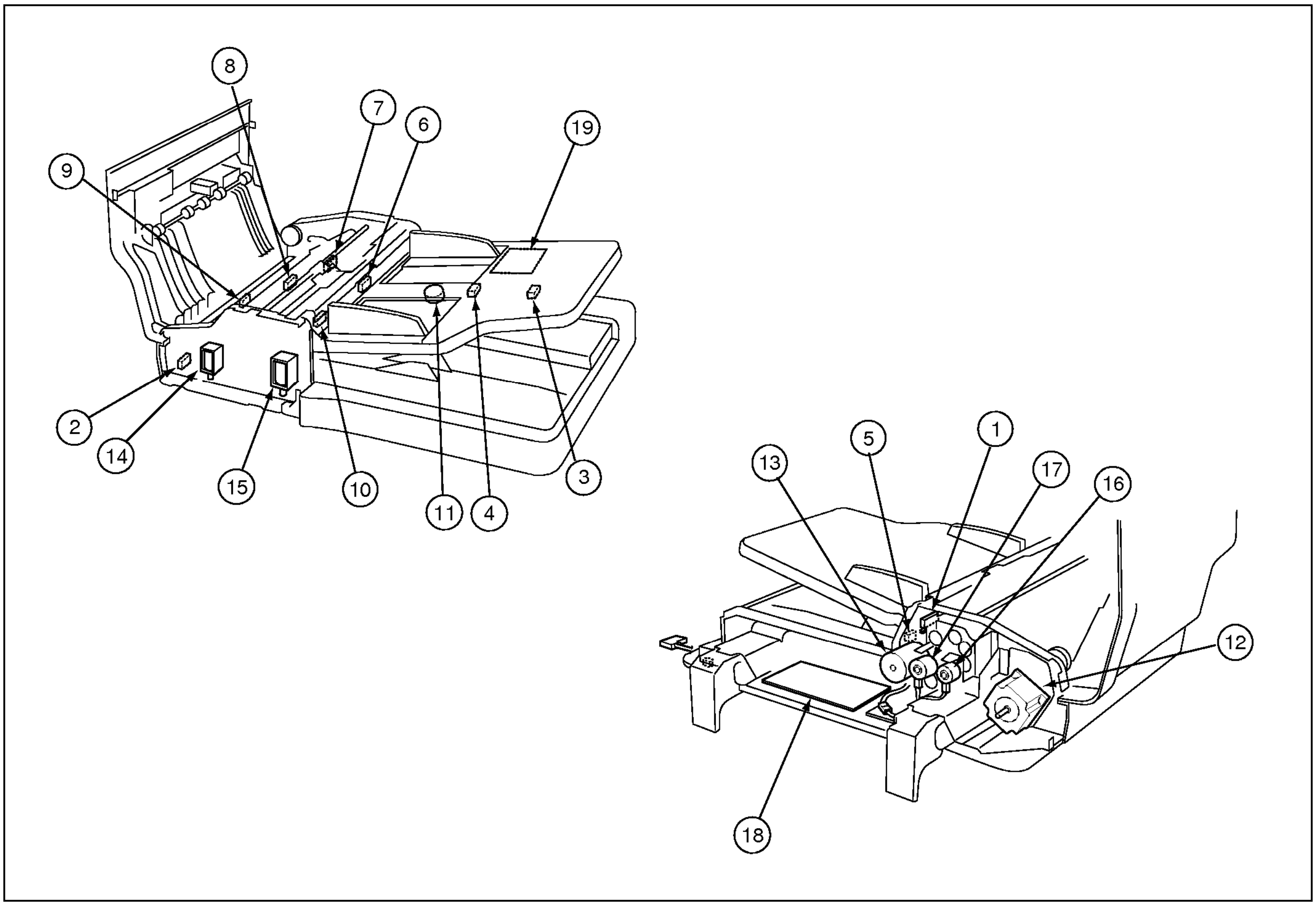
2

DIAGRAMS

2. DIAGRAMS

ELECTRICAL PARTS LAYOUT DRAWING ... 2-1
CONNECTOR LAYOUT DRAWING 2-2
DF-311 OVERALL WIRING DIAGRAM 2-3
DF CONTROL BOARD CIRCUIT DIAGRAM (1/2) 2-4
DF CONTROL BOARD CIRCUIT DIAGRAM (2/2) 2-5
TIMING CHART (A4, ONE SIDE ORIGINALS, FIVE SHEETS) 2-6
TIMING CHART (A4, DUAL-SIDED ORIGINALS, TWO SHEETS) 2-6

ELECTRICAL PARTS LAYOUT DRAWING



1. Switches and Sensors

①	MS301	Cover open/close detect MS
②	PS301	RADF open/close detect PS
③	PS302	Original size detect sensor 1
④	PS303	Original size detect sensor 2
⑤	PS304	Motor clock detect sensor
⑥	PS305	No original detect sensor
⑦	PS306	Original registration sensor
⑧	PS307	Original exit detect sensor
⑨	PS308	Original feed detect sensor
⑩	PS309	Original reversal detect sensor
⑪	VR301	Original size detect VR

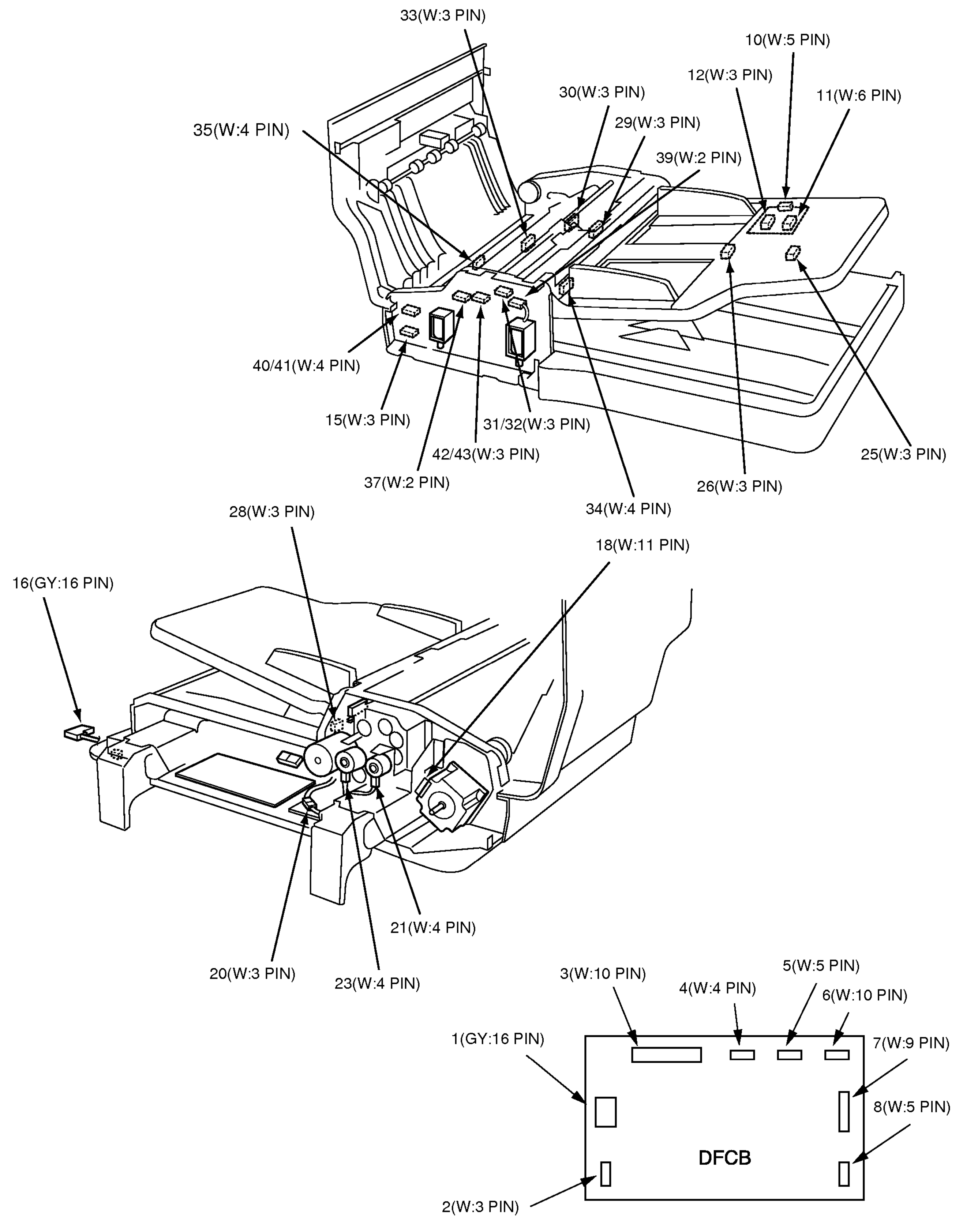
2. Loads

⑫ M301 Original conveyance motor
⑬ M302 Original feed motor
⑭ SD301 Flapper solenoid
⑮ SD302 Original pressure solenoid
⑯ CL301 Original pick-up clutch
⑰ CL302 Original feed clutch

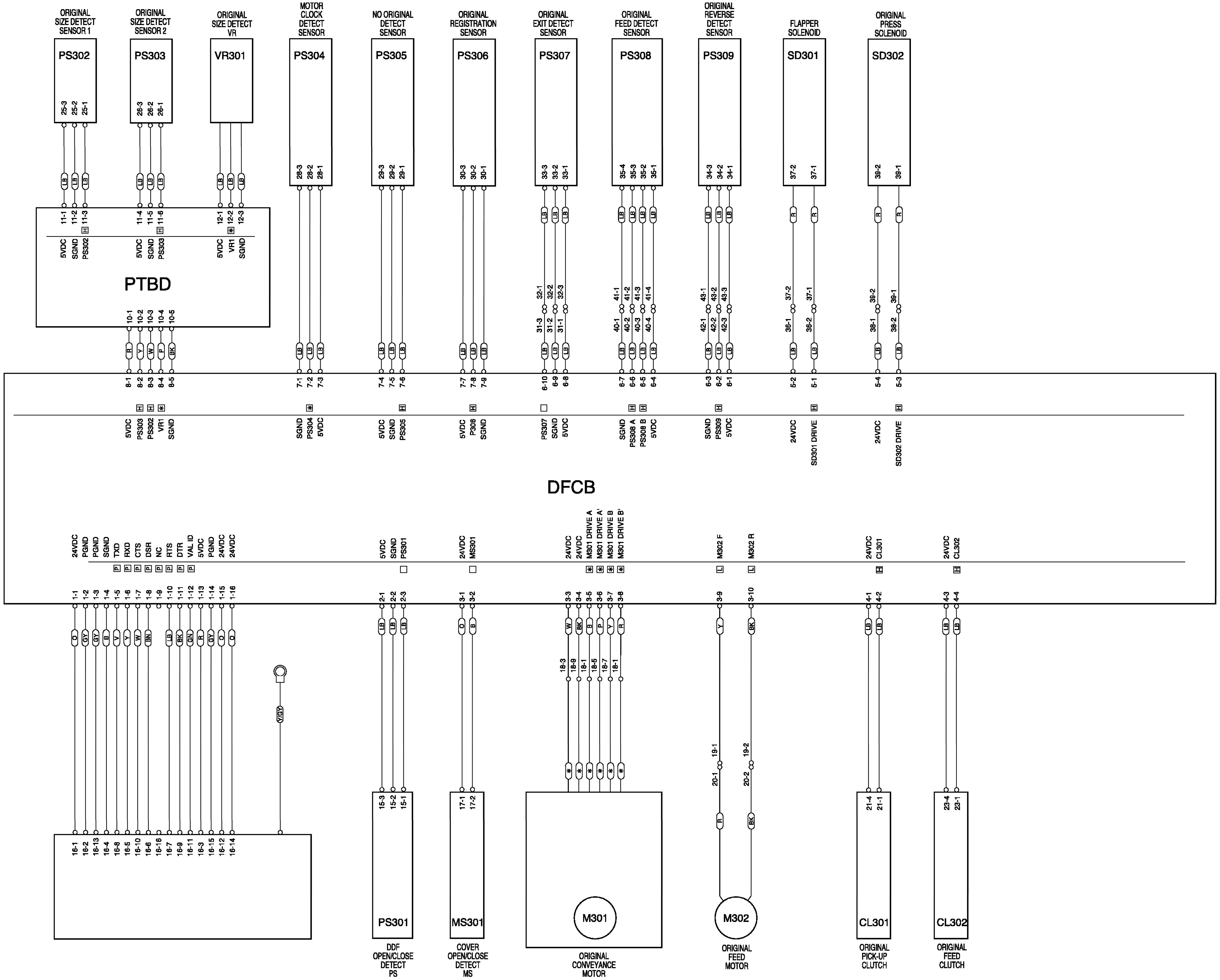
3. PCBs and Others

⑱ DFCB DF control board
⑲ PTBD Paper tray board

CONNECTOR LAYOUT DRAWING


33(W:3 PIN)
10(W:5 PIN)
12(W:3 PIN)
30(W:3 PIN)
11(W:6 PIN)
29(W:3 PIN)
35(W:4 PIN)
39(W:2 PIN)
40/41(W:4 PIN)
15(W:3 PIN)
31/32(W:3 PIN)
42/43(W:3 PIN)
25(W:3 PIN)
37(W:2 PIN)
26(W:3 PIN)
28(W:3 PIN)
34(W:4 PIN)
18(W:11 PIN)
16(GY:16 PIN)
21(W:4 PIN)
20(W:3 PIN)
23(W:4 PIN)
3(W:10 PIN)
5(W:5 PIN)
4(W:4 PIN)
6(W:10 PIN)
1(GY:16 PIN)
7(W:9 PIN)
8(W:5 PIN)
DFCB
2(W:3 PIN)

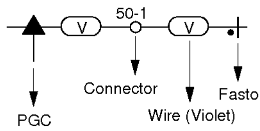
DF-311 OVERALL WIRING DIAGRAM


ORIGINAL SIZE DETECT SENSOR 1
PS302
ORIGINAL SIZE DETECT SENSOR 2
PS303
ORIGINAL SIZE DETECT VR
VR301
MOTOR CLOCK DETECT SENSOR
PS304
NO ORIGINAL DETECT SENSOR
PS305
ORIGINAL REGISTRATION SENSOR
PS306
ORIGINAL EXIT DETECT SENSOR
PS307
ORIGINAL FEED DETECT SENSOR
PS308
ORIGINAL REVERSE DETECT SENSOR
PS309
FLAPPER SOLENOID
SD301
ORIGINAL PRESS SOLENOID
SD302
PTBD
DFCB
5VDC
SGND
PS302
PS303
VR1
PS304
PS305
P306
PS307
PS308 A
PS308 B
PS309
24VDC
SD301 DRIVE
SD302 DRIVE
PGND
TXD
RXD
CTS
DSR
NC
RTS
DTR
VAL ID
PS301
MS301
M301 DRIVE A
M301 DRIVE A'
M301 DRIVE B
M301 DRIVE B'
M302 F
M302 R
CL301
CL302
PS301
DDF OPEN/CLOSE DETECT PS
MS301
COVER OPEN/CLOSE DETECT MS
M301
ORIGINAL CONVEYANCE MOTOR
M302
ORIGINAL FEED MOTOR
CL301
ORIGINAL PICK-UP CLUTCH
CL302
ORIGINAL FEED CLUTCH

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]


50-1
V
V
PGC
Connector
Wire (Violet)
Faston

(2) [Color code]

BN - Brown	B - Blue
R - Red	V - Violet
O - Orange	GY- Gray
Y - Yellow	W - White
GN - Green	BK- Black
LB - Light blue	P - Pink

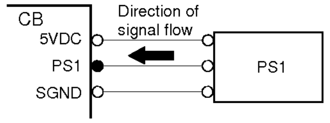
Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

(4) Signal flow

The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.

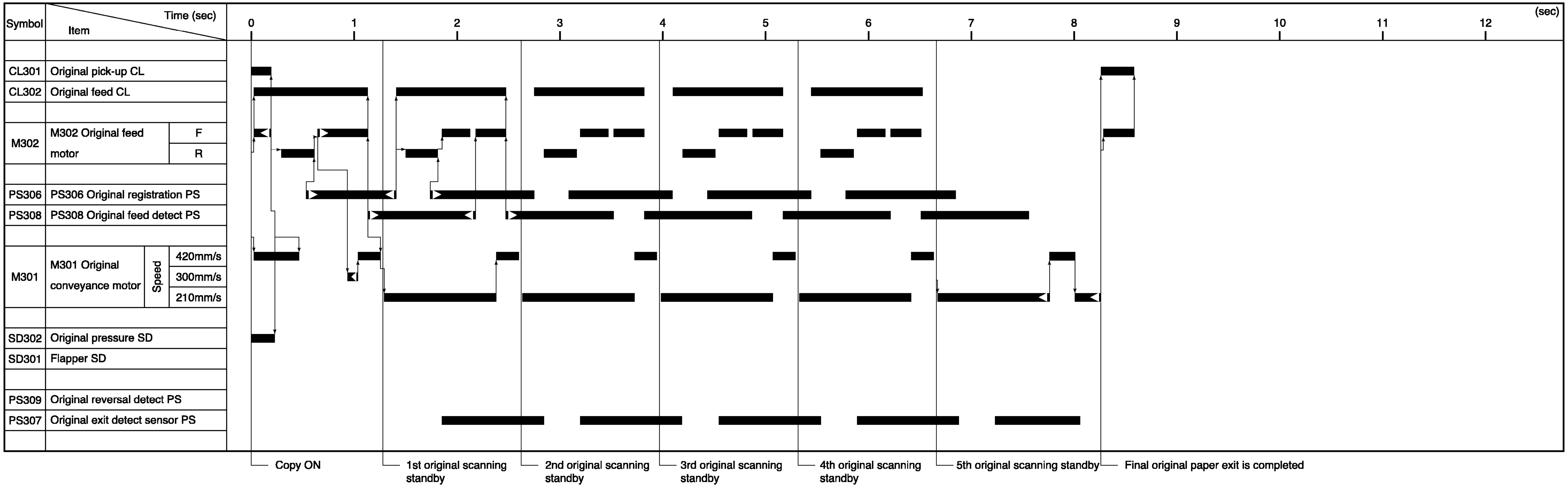
Example)


CB
5VDC
PS1
SGND
Direction of signal flow
PS1

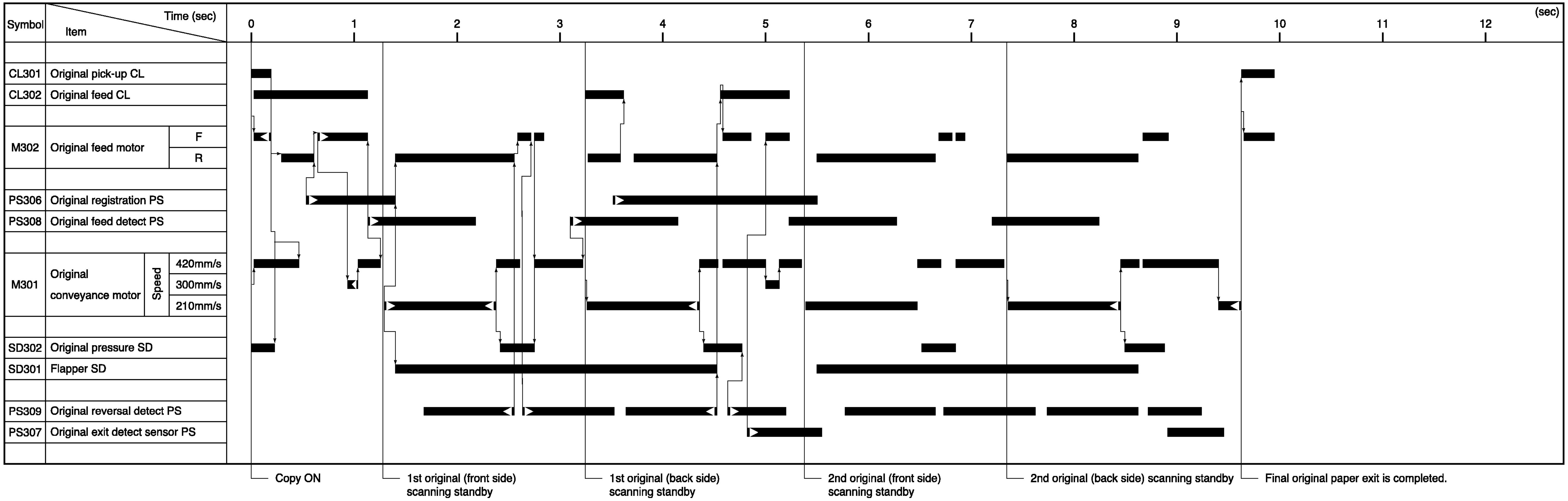
DF CONTROL BOARD CIRCUIT DIAGRAM (1/2)

DF CONTROL BOARD CIRCUIT DIAGRAM (2/2)

TIMING CHART (A4, ONE SIDE ORIGINALS, FIVE SHEETS)



TIMING CHART (A4, DUAL-SIDED ORIGINALS, TWO SHEETS)



Konica

FS-105

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to the 7040 service handbook on page C-1

1. FS-105

2. DIAGRAMS

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

1

FS-105

1. FS-105

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This section covers the structure, functions, operation and method of disassembling and assembling the machine.

Observe the following precautions when performing disassembly and assembly work.

1. Be sure to unplug the power cord before working on the machine.
2. Perform all reassembly work by reversing the order in which the component was disassembled, unless otherwise specified.
3. Do not lose small parts (screws, etc.) or insert them in the wrong place.
4. Install all parts completely before operating the machine.
5. Do not loosen the screws indicated as disallowed for removal.

FS-105 PRODUCT SPECIFICATIONS

[1] Type

Type: Drum inverting type, Multi-tray finisher

[2] Functions

Kinds of copy paper: Same as main body

Copy paper size: A3R, F4R, B4R, A4, A4R, B5, B5R, A5R, 8.5×11, 8.5×11R

Modes ○ : Available × : Not available

Tray / Mode	Tray 1	Tray 2	Tray 3
Through mode	○	○	○
Offset mode	×	○	○
Staple mode	×	○	○

Sheet capacity

Tray	Mode	Small sizes	Middle sizes	Large sizes	Special paper
Tray 1	Through mode	100	100	100	10
Tray 2, Tray 3	Through mode	300	500	300	–
	Offset mode	–	500	300	–
	Staple mode	25 sets (Note)			–

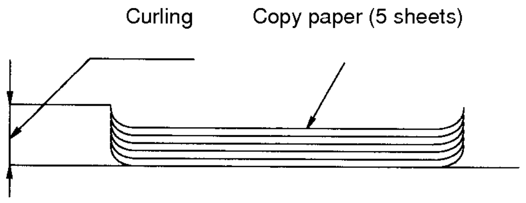
The above numbers apply for same-size paper (80g/m^2, standard paper) stacked continuously.

Small sizes : A5R
Middle sizes : A4, A4R, B5, B5R, 8.5×11, 8.5×11R
Large sizes : A3R, F4R, B4R
Special paper : Other than standard paper (thin paper, thick paper, blueprint masters, OHP film etc.)
Note: The maximum capacity (500 or 300 sheets) should not be exceeded.

Paper weight

Tray 1: 50 - 200 g/m^2
Tray 2/3: 60 - 160 g/m^2

Copy paper curling: 10 mm max.



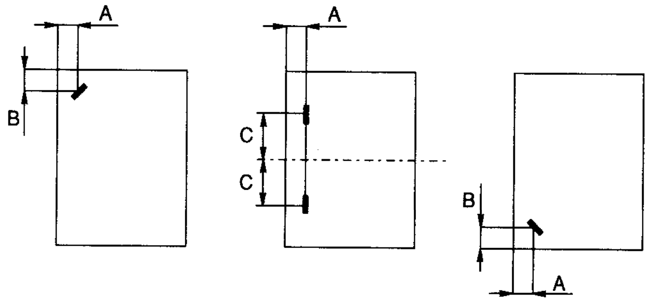
Offset amount: 30 mm (offset/group mode)

[3] Stapler Kit

Number of copies that can be stapled together:
50 max. (80 g/m^2 fine quality paper, thickness 5 mm max.)

△3 **Staple position:**
A = 8 mm (Non-adjustable)
B = 10 mm (±3 mm adjustable)
C = 90 mm (±4 mm adjustable)

Stapler capacity:
5000 staples/cartridge



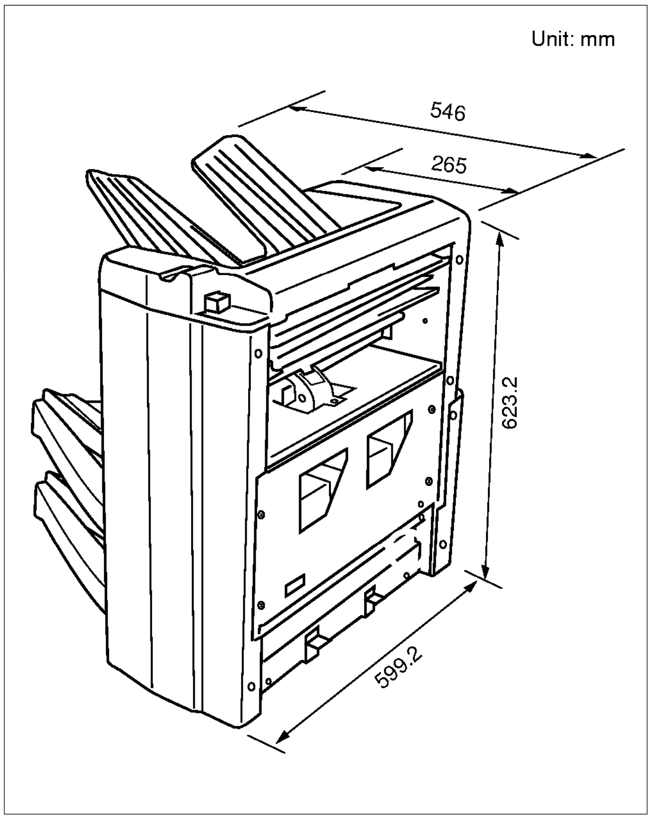
[4] Machine Data

Power source: 24 V DC / 5 V (supplied from main body)

Max. power consumption:
100 VA (FS-105 only)

Weight: approx. 32.5 kg (with base)

Machine dimensions



[5] Maintenance

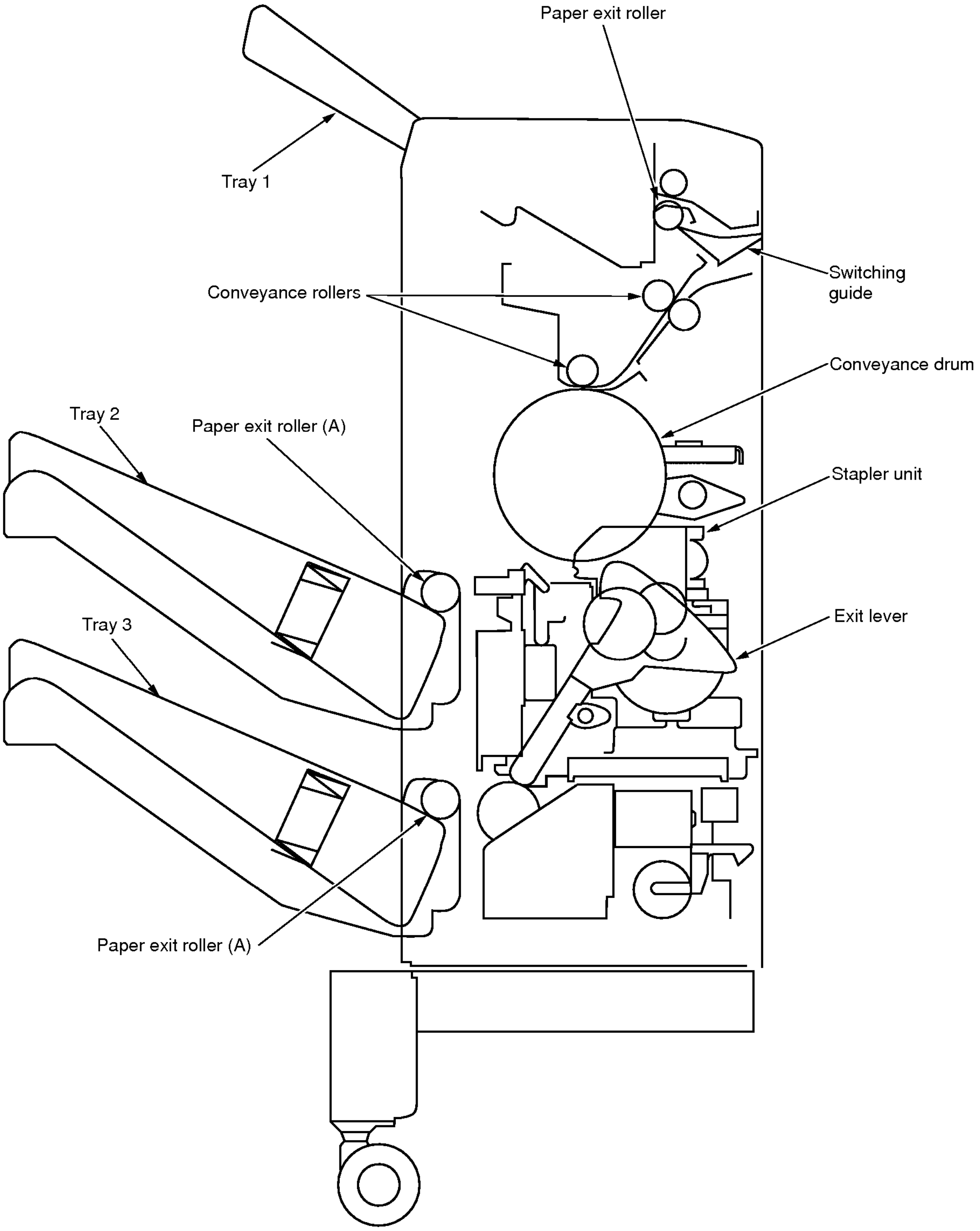
Maintenance:	Same as main body
Service life:	Same as main body

[6] Operating Environment

Temperature:	10°C ~ 33 °C
Humidity:	20% to 80% RH

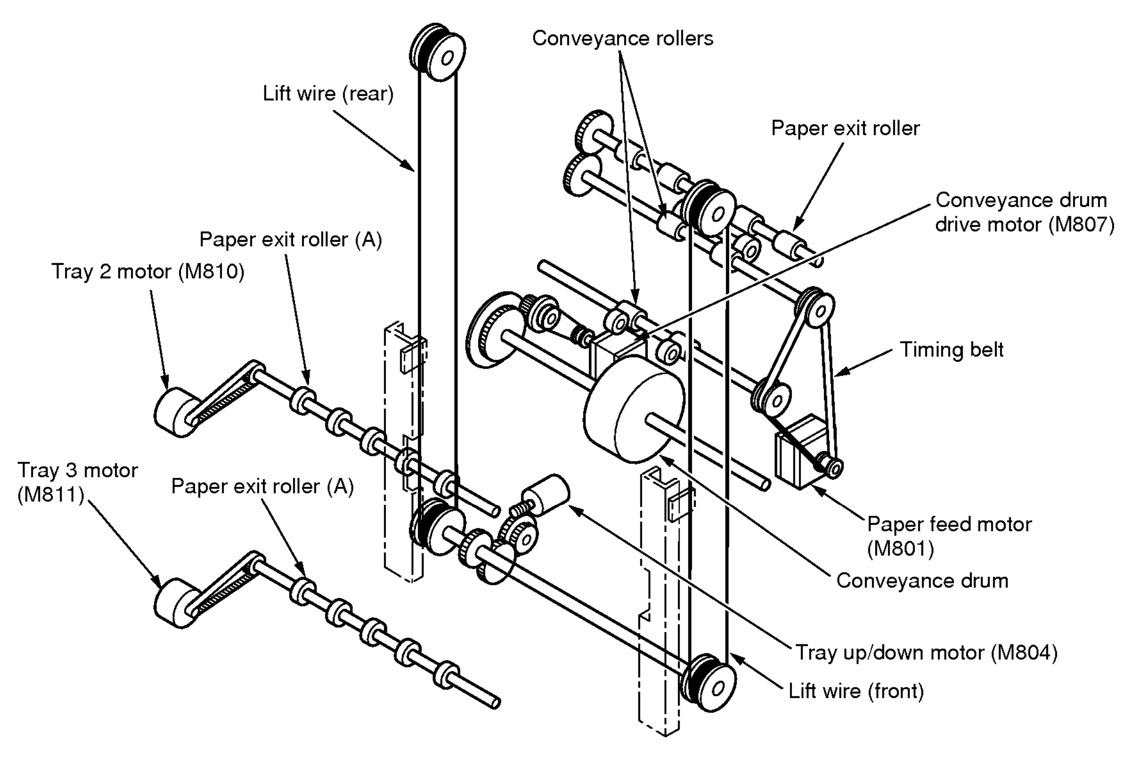
Note: The contents of this manual may be changed without prior notice.

CENTER CROSS-SECTIONAL DRAWING

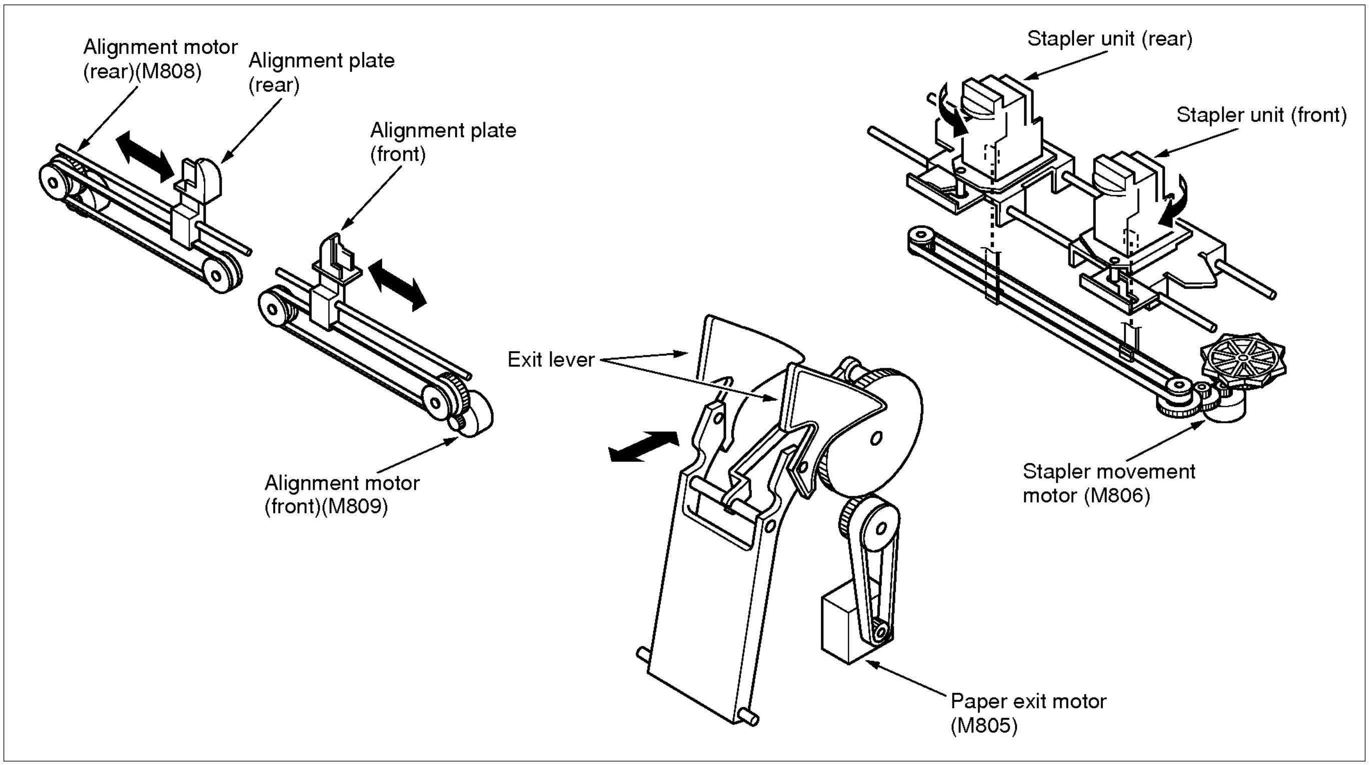

Paper exit roller
Tray 1
Conveyance rollers
Switching guide
Conveyance drum
Tray 2
Paper exit roller (A)
Stapler unit
Tray 3
Exit lever
Paper exit roller (A)

DRIVE SYSTEM DRAWING

[1] Paper Conveyance System Drive

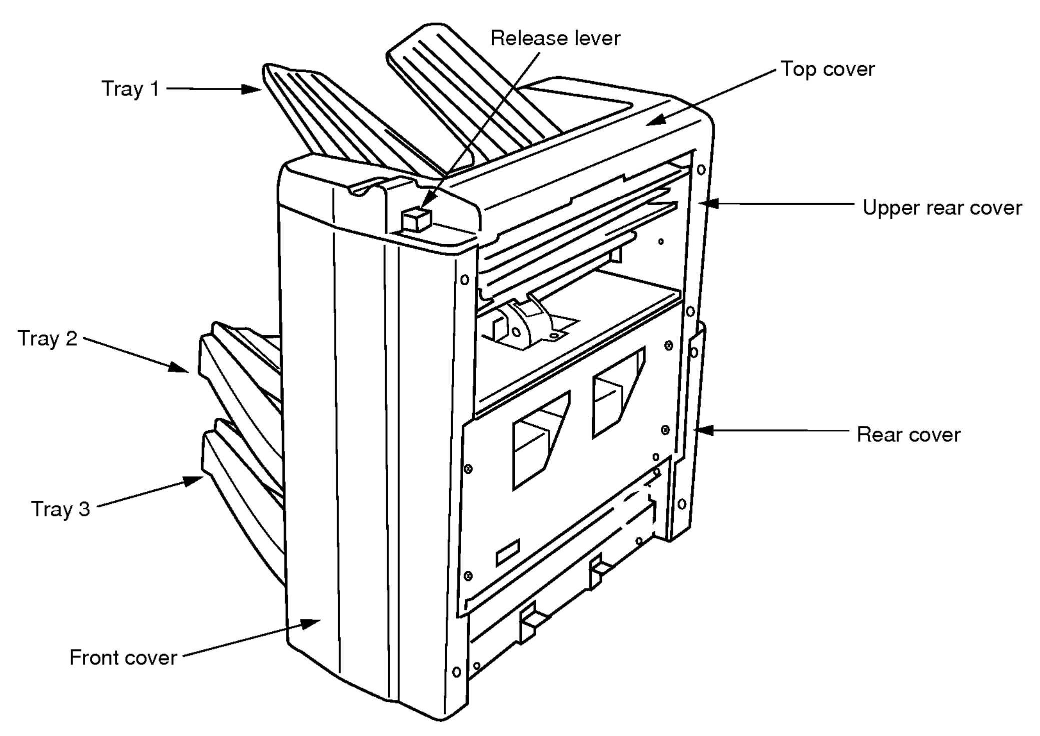

Conveyance rollers
Lift wire (rear)
Paper exit roller
Conveyance drum drive motor (M807)
Paper exit roller (A)
Tray 2 motor (M810)
Timing belt
Tray 3 motor (M811)
Paper exit roller (A)
Paper feed motor (M801)
Conveyance drum
Tray up/down motor (M804)
Lift wire (front)

[2] Stapler Unit Drive


Alignment motor (rear)(M808)
Alignment plate (rear)
Alignment plate (front)
Stapler unit (rear)
Stapler unit (front)
Exit lever
Alignment motor (front)(M809)
Stapler movement motor (M806)
Paper exit motor (M805)

EXTERNAL SECTION

[1] Construction


Release lever
Top cover
Tray 1
Upper rear cover
Tray 2
Rear cover
Tray 3
Front cover

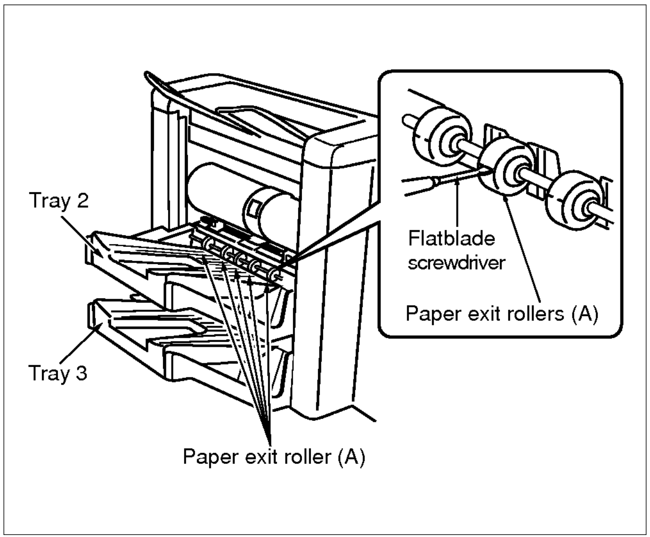
[2] Disassembly and Re-assembly

1. Replacing the paper exit roller (A) (for tray 2)

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Insert a flatblade screwdriver or similar into the joint of a paper exit roller (A), pry the roller open, and remove it. Remove all paper exit roller (A) (5 rollers) in this way.


Tray 2
Tray 3
Flatblade screwdriver
Paper exit rollers (A)
Paper exit roller (A)

(2) To install new rollers, snap two roller parts (top and bottom) onto the exit roller shaft (5 locations).

2. Replacing the paper exit roller (A) (for tray 3)

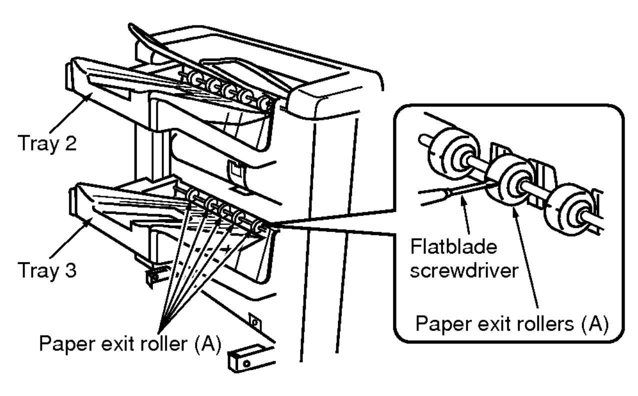
a. Procedure

(1) Use the operation panel on the main body to specify tray 3 and raise tray 2 to the topmost position.

(2) Turn the power OFF of the main body and unplug the power cord from the power outlet.

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

(3) Insert a flatblade screwdriver or similar into the joint of a paper exit roller (A), pry the roller open, and remove it. Remove all paper exit roller (A) (5 rollers) in this way.


Tray 2
Tray 3
Paper exit roller (A)
Flatblade screwdriver
Paper exit rollers (A)

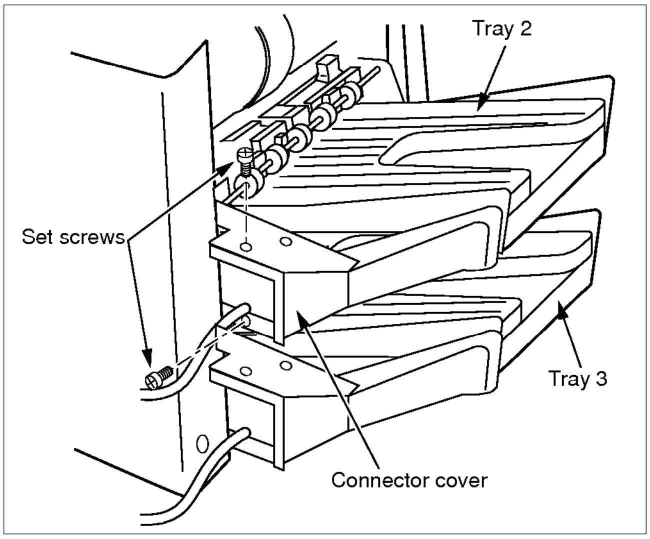
(4) To install new rollers, snap two roller parts (top and bottom) onto the exit roller shaft (5 locations).

3. Removing and Re-installing the tray 2

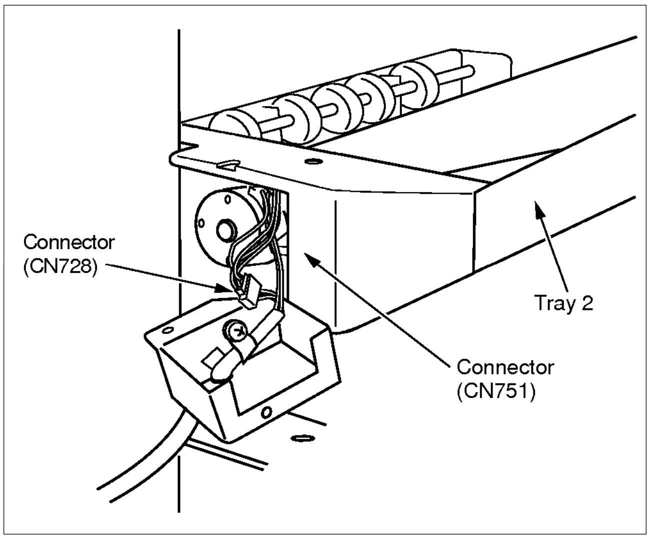
⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the two set screws, then remove the connector cover.

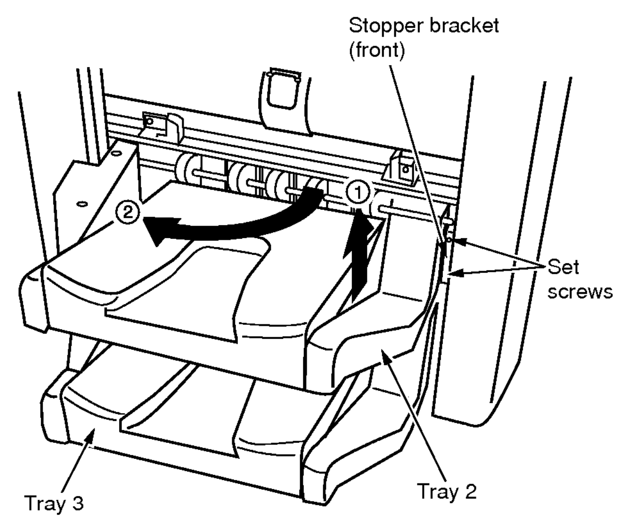

Tray 2
Set screws
Tray 3
Connector cover

(2) Disconnect the two connectors (CN728, CN751).


Connector (CN728)
Tray 2
Connector (CN751)

(3) Remove the two set screws, then remove the stopper bracket (front).

(4) Lift the front side of tray 2 up, then rotate it towards the rear and remove it.


Stopper bracket (front)
②
①
Set screws
Tray 3
Tray 2

(5) Re-install the tray 2 in the opposite sequence to removal.

4. Removing and Re-installing the tray 3

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the tray 2.

(2) Remove the two set screws, then remove the connector cover. (Refer to “3. Removing and Re-installing the tray 2”.)

(3) Disconnect the two connectors (CN729, CN752). (Refer to “3. Removing and Re-installing the tray 2”.)

(4) Remove the two set screws, then remove the stopper bracket (front). (Refer to “3. Removing and Re-installing the tray 2”.)

(5) Lift the front side of tray 3 up, then rotate it towards the rear and remove it. (Refer to “3. Removing and Re-installing the tray 2”.)

(6) Re-install the tray 3 in the opposite sequence to removal.

5. Removing and Re-installing the external covers

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

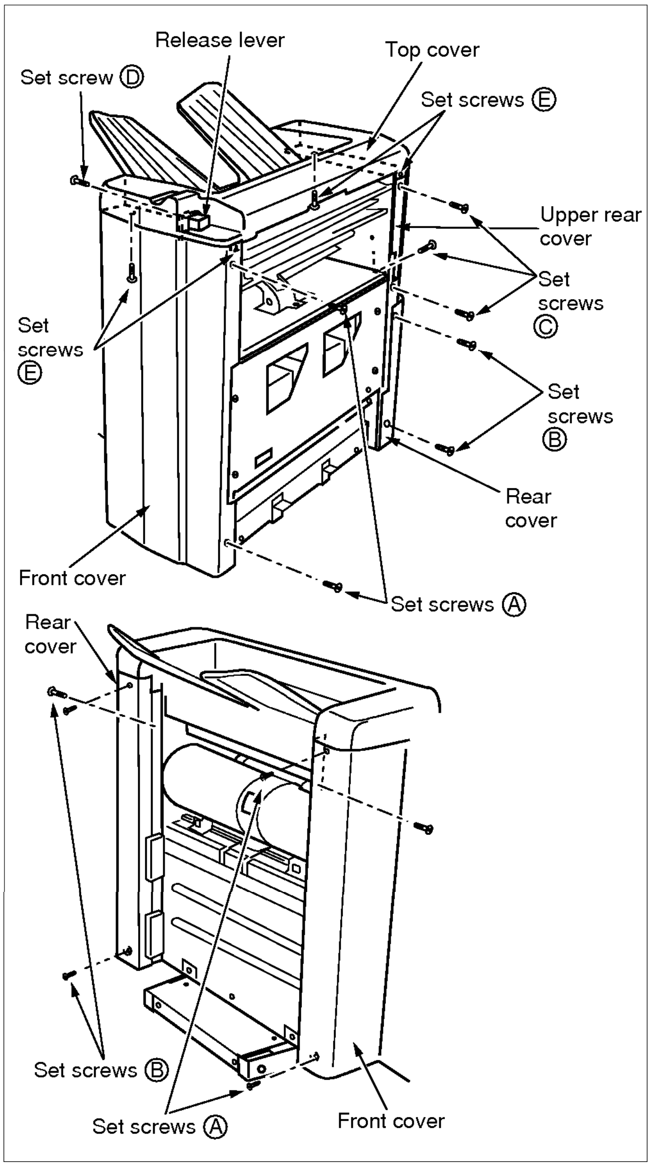
(1) Remove the four set screws Ⓐ, then remove the front cover.

(2) Remove the five set screws Ⓑ, then remove the rear cover.

(3) Remove the three set screws Ⓒ, then remove the upper rear cover.

(4) Remove the set screw Ⓓ, then remove the release lever.

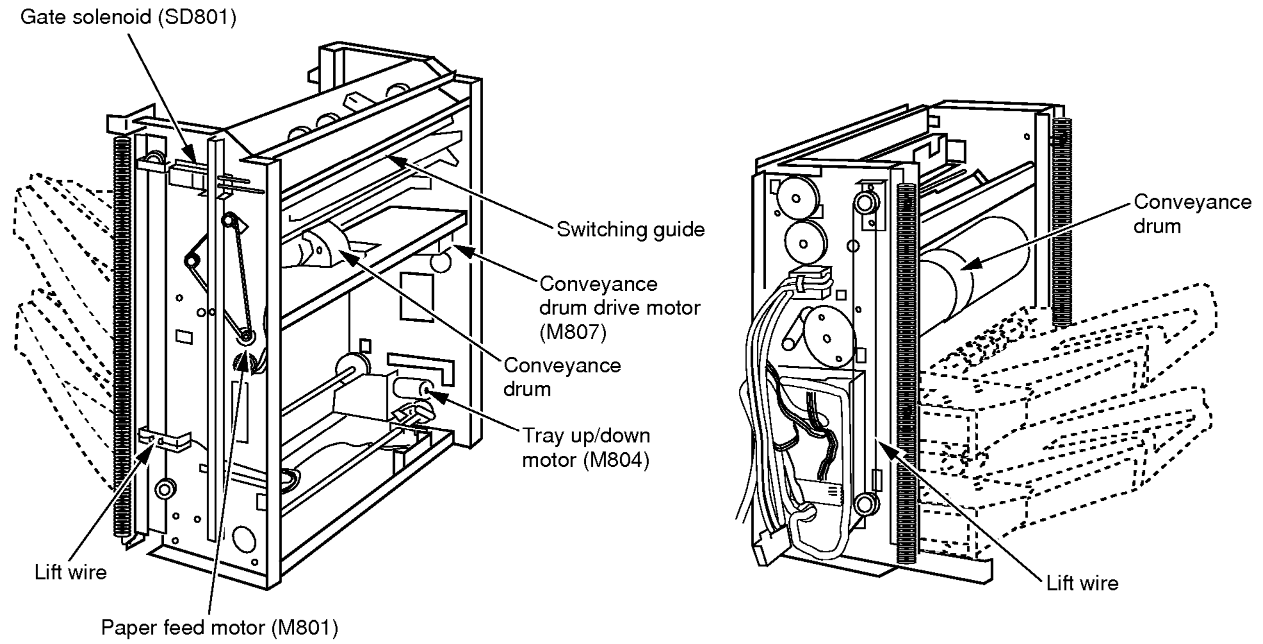
(5) Remove the four set screws Ⓔ, then release the top cover.


Release lever
Top cover
Set screw Ⓓ
Set screws Ⓔ
Upper rear cover
Set screws Ⓒ
Set screws Ⓔ
Set screws Ⓑ
Rear cover
Front cover
Set screws Ⓐ
Rear cover
Set screws Ⓑ
Set screws Ⓐ
Front cover

(6) Re-install the external covers in the opposite sequence to removal.

CONVEYANCE SECTION

[1] Construction

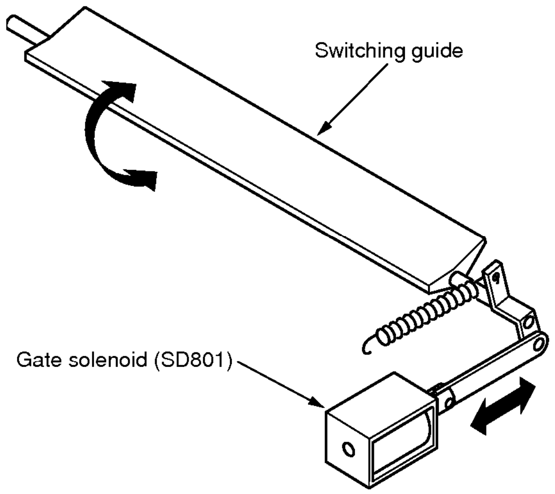

Gate solenoid (SD801)
Switching guide
Conveyance drum drive motor (M807)
Conveyance drum
Tray up/down motor (M804)
Lift wire
Paper feed motor (M801)
Conveyance drum
Lift wire

[2] Mechanism

	Mechanisms	Methods
∗1	Paper path switching	Switching guide
∗2	Paper conveyance	Conveyance roller Conveyance drum
∗3	Tray lift (up/down)	Wire drive (Lift wire)

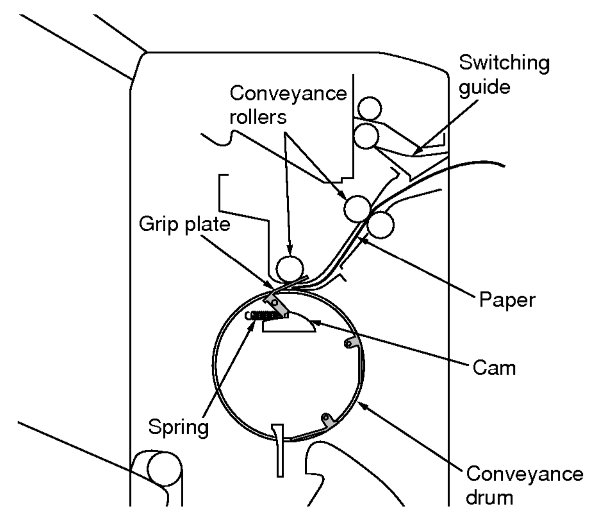
∗1:Paper path switching

The paper exited from the fixing unit in the main body passes through the switching guide which sends it to tray 1 or tray 2/3. The switching guide is operated by the on/off state of the gate solenoid (SD801).

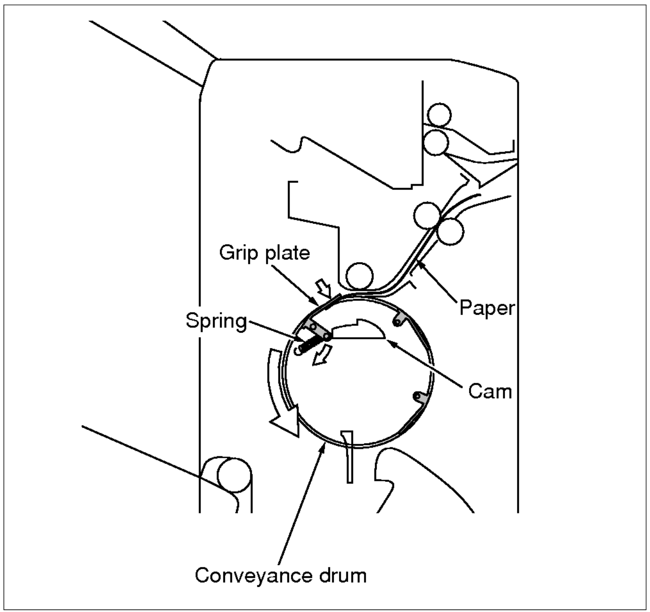

Switching guide
Gate solenoid (SD801)

∗2:Paper Conveyance

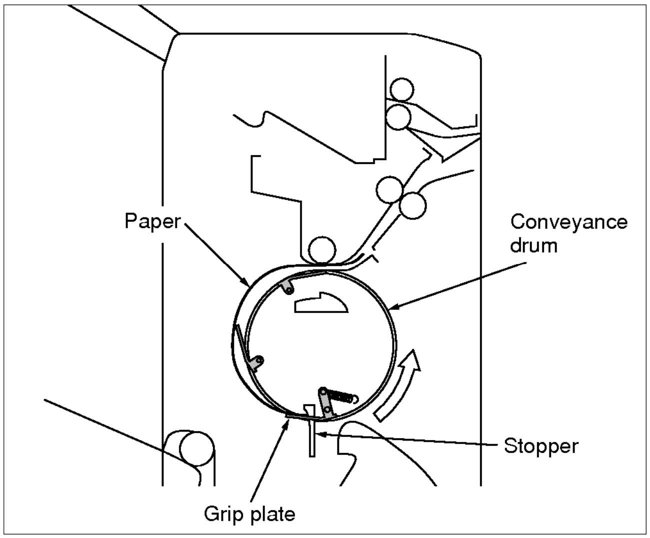
When the paper has been switched to tray 2/3 by the switching guide, the conveyance roller conveys it to the conveyance drum until it enters the grip plate on the circumference of the drum.


Switching guide
Conveyance rollers
Grip plate
Paper
Cam
Spring
Conveyance drum

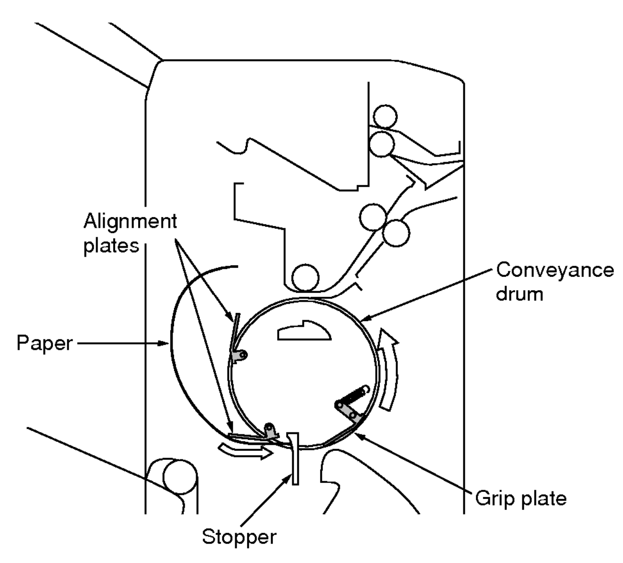
The grip plate closes due to the force of a cam and spring arrangement and grasps the paper.


Grip plate
Spring
Paper
Cam
Conveyance drum

When the rotation speed of the drum increases, the paper is pushed out and separated from the conveyance drum. When the grip plate on the conveyance drum reaches the paper exit position, the paper hits a stopper and is separated from the grip plate.


Paper
Conveyance drum
Stopper
Grip plate

Behind the grip plate on the drum circumference, there are two alignment plates. When these reach the paper exit position, their own weight causes them to open, and the rubber section at the plate tip aligns the paper against the stopper.

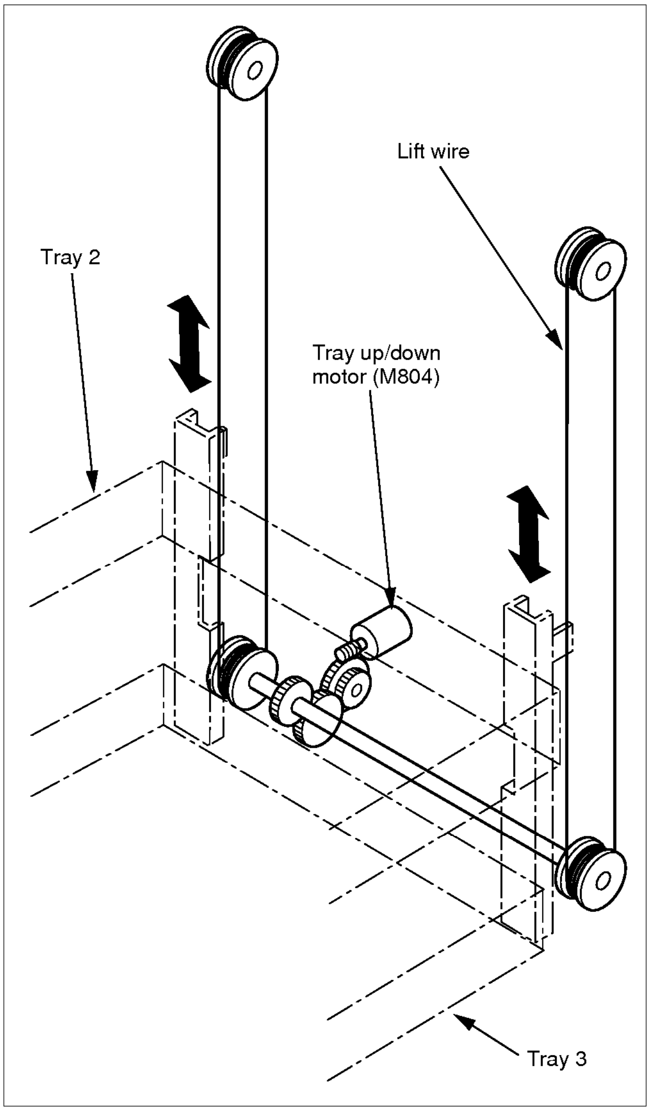

Alignment plates
Paper
Conveyance drum
Grip plate
Stopper

The grip plate and alignment plates on the conveyance drum do not use electrical control, they operate only through the rotation of the drum. (The grip plate is driven by the drum via a cam arrangement, and the alignment plates are driven by the centrifugal force and their own weight.)

The conveyance drum and conveyance rollers are controlled electrically by the conveyance drum drive motor (M807) and the paper feed motor (M801).

∗3: Tray lift

The paper exit position for the paper sent to tray 2/3 is fixed. Switching between tray 2 and tray 3 is carried out by changing the tray position with the tray lift (up/down) mechanism.
The tray lift mechanism is driven by the tray up/down motor (M804) whose driving force is transmitted to the tray by a wire arrangement.


Lift wire
Tray 2
Tray up/down motor (M804)
Tray 3

[3] Disassembly and Assembly

1. Removing and Re-installing the lift wire

⚠Caution: Be sure that the power cord has been unplugged from the power outlet.

a. Procedure

(1) Remove the tray 2 and tray 3.

(2) Remove the external covers.

Note: The lift wire must be removed (and installed) first on the front side and then on the rear side.

(3) Remove the two set screws, then release the wire fastening bracket (front).

(4) Loosen the two set screws, then release the pulley tensioning plate (front).

(5) Remove the E ring of the lower pulley (front).

(6) Remove the lower pulley (front), then remove the lift wire (front).

(7) Attach the metal ball of the lift wire to the inside of the lower pulley (front) and pass the pulley onto the shaft. The end of the wire attached to the pulley must be the short end as seen from the wire fastening bracket.

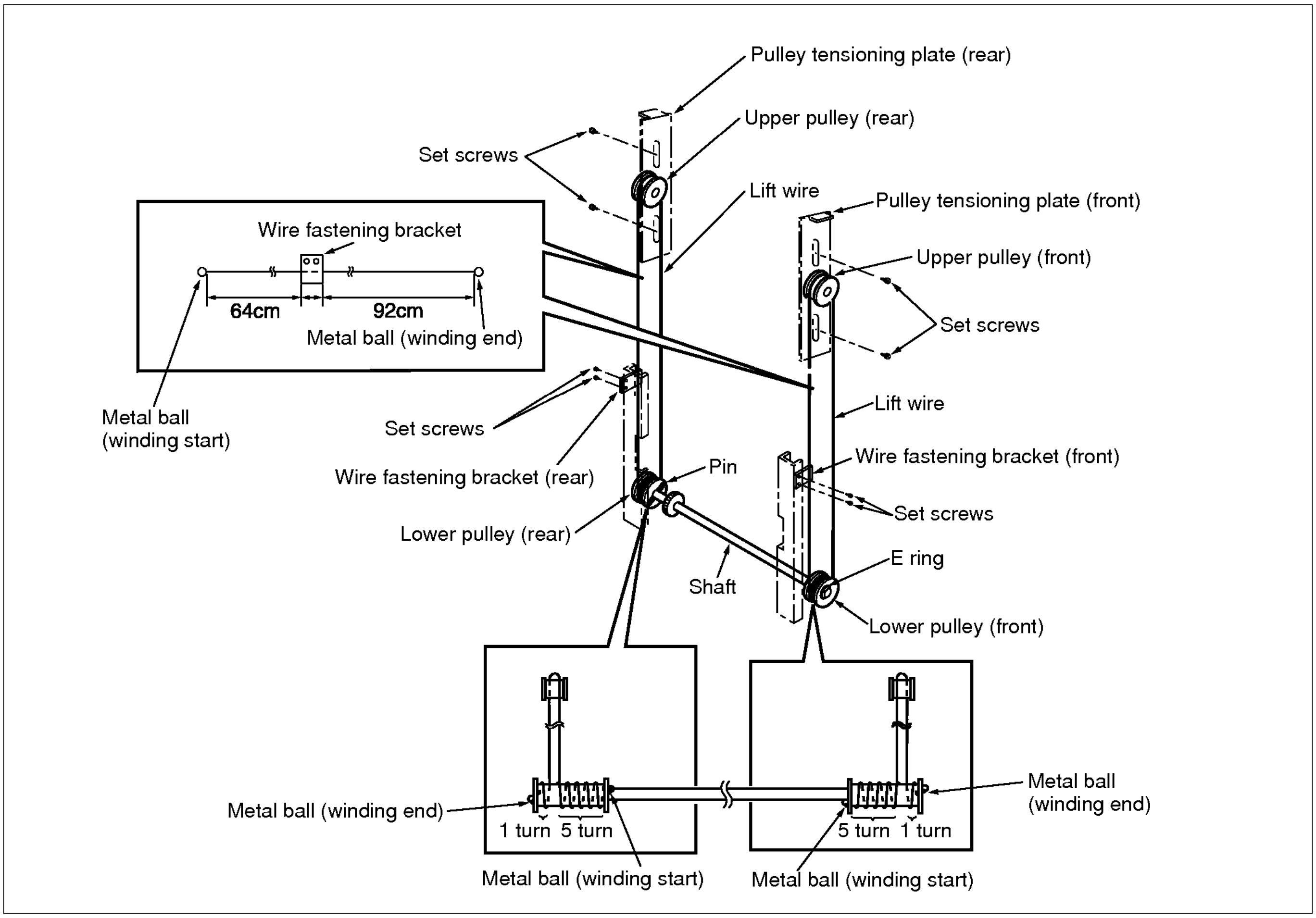
Note: When installing the lower pulley (front) onto the shaft, align the pin on the shaft with the lower pulley (front).

(8) Wind the lift wire five turns around the lower pulley (front) and then hook the wire onto the upper pulley (front).

Note: Wind the wire clockwise as seen from the front.

(9) Route the lift wire from the upper pulley (front) back down to the lower pulley (front) and wind it one turn in clockwise direction around the pulley. Then attach the metal ball at the end of the wire to the side of the lower pulley (front).

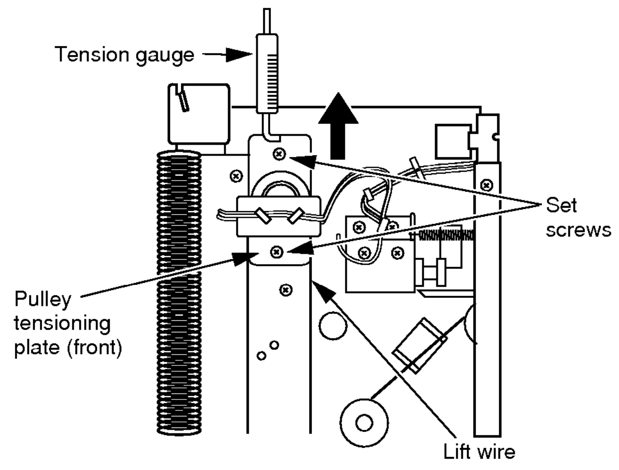
(10) Attach the E ring to secure the lower pulley (front).


Pulley tensioning plate (rear)
Upper pulley (rear)
Set screws
Lift wire
Pulley tensioning plate (front)
Wire fastening bracket
64cm
92cm
Metal ball (winding end)
Upper pulley (front)
Set screws
Metal ball
(winding start)
Set screws
Lift wire
Wire fastening bracket (front)
Wire fastening bracket (rear)
Pin
Set screws
Lower pulley (rear)
E ring
Shaft
Lower pulley (front)
Metal ball (winding end)
1 turn
5 turn
5 turn
1 turn
Metal ball
(winding end)
Metal ball (winding start)
Metal ball (winding start)

(11) Pull the pulley tensioning plate (front) up until a tension of 2.3 kg is achieved, then fasten the plate with the two set screws.

Note: Use a tension gauge or similar when fastening the pulley tensioning plate, to assure that the specified tension value is achieved.

Specification: 2.3 kg



(12) Provisionally fasten the two set screws of the wire fastening bracket (front).

(13) Remove the lift wire on the rear side in the same way as described in steps (3) through (6).

(14) Attach the metal ball of the lift wire to the inside of the lower pulley (rear) and pass the pulley onto the shaft. The end of the wire attached to the pulley must be the short end as seen from the wire fastening bracket.

Note: When setting the lower pulley (rear) onto the shaft, align the pin on the shaft with the lower pulley (rear).

(15) Wind the lift wire five turns around the lower pulley (rear) and then hook the wire onto the upper pulley (rear).

Note: Wind the wire counterclockwise as seen from the front.

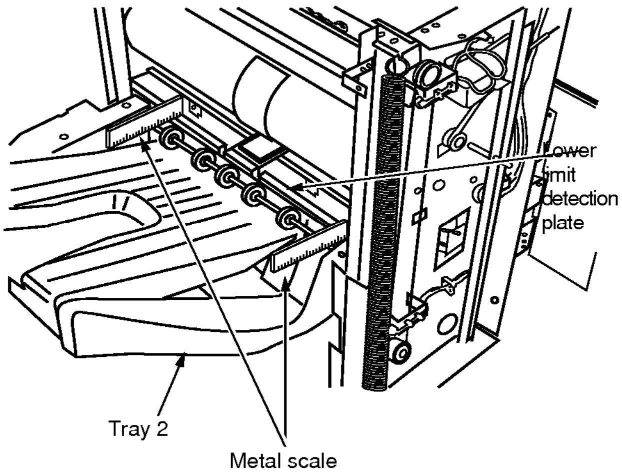
(16) Route the lift wire from the upper pulley (rear) back down to the lower pulley (rear) and wind it one turn in counterclockwise direction around the pulley. Then at tach the metal ball at the end of the wire to the side of the lower pulley (rear).

(17) Attach the E ring to secure the lower pulley (rear).

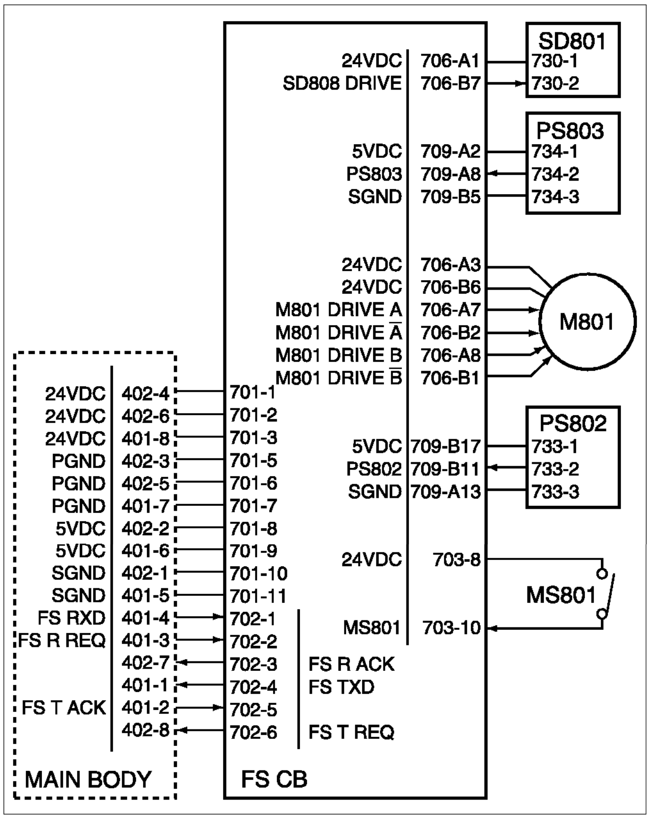
(18) Fasten the pulley tensioning plate (rear) and wire fastening bracket (rear) as described in steps (11) and (12).

(19) Install the tray 2 and move its position in the vertical direction so that the tray is flush with the lower limit detection plate. Then permanently secure the wire fastening brackets (front) and (rear) which were provisionally fastened previously.

Note: To check the flush condition, use a metal ruler or other suitable tool on both the front and the rear side.



[4] Paper Feed Motor (M801) Control


SD801
24VDC 706-A1 730-1
SD808 DRIVE 706-B7 730-2
PS803
5VDC 709-A2 734-1
PS803 709-A8 734-2
SGND 709-B5 734-3
24VDC 706-A3
24VDC 706-B6
M801 DRIVE A 706-A7
M801 DRIVE A̅ 706-B2
M801 DRIVE B 706-A8
M801 DRIVE B̅ 706-B1
M801
PS802
5VDC 709-B17 733-1
PS802 709-B11 733-2
SGND 709-A13 733-3
24VDC 703-8
MS801
MS801 703-10
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
MAIN BODY
FS CB

Paper exit conveyance takes place as a result of the transmission of the drive force of motor M801 (paper feed) to the paper exit rollers and conveyance rollers. The paper conveyance path is switched between tray 1 or tray 2/3 by solenoid SD801 (gate).

M801 and SD801 are controlled by the FS CB (FS control board).

1. Operation

a. Gate switching operation

Normally, SD801 is OFF and the gate allows paper to exite to tray 2/3. When tray 1 is selected as the paper exit tray, SD801 goes ON, the gate is switched, and the paper is conveyed to tray 1.

b. Conveyance operation

M801 is turned ON and OFF in conjunction with the copy operation of the main body. During operation of the main body, the M801 rotates constantly, enabling paper conveyance at any time.

When paper has been conveyed to tray 2/3, the status of the PS802 (conveyance drum entrance detect) and main body PS (paper exit detect sensor) causes the M801 to be switched from low speed to high speed. The high-speed activation signal and the rotation speed depend on the paper size.

2. Signals

a. Input signals

(1) PS802 (PS802 → FS CB)
Paper detection signal at the paper exit section entrance of the tray 1.
[H]: Paper is detected
[L]: Paper is not detected

(2) PS803 (PS803 → FS CB)
Paper detection signal at the paper exit section entrance of the tray 2 and tray 3 side.
[H]: Paper is detected
[L]: Paper is not detected

(3) MS801 (MS801 → FS CB)
Power supply line for various loads. When finisher is in mechanical contact with main body, 24 V DC is supplied to finisher.

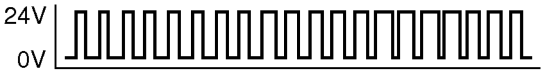
(4) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(5) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

(6) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

b. Output signals

(1) M801 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M801)
M801 (conveyance) ON/OFF drive signal



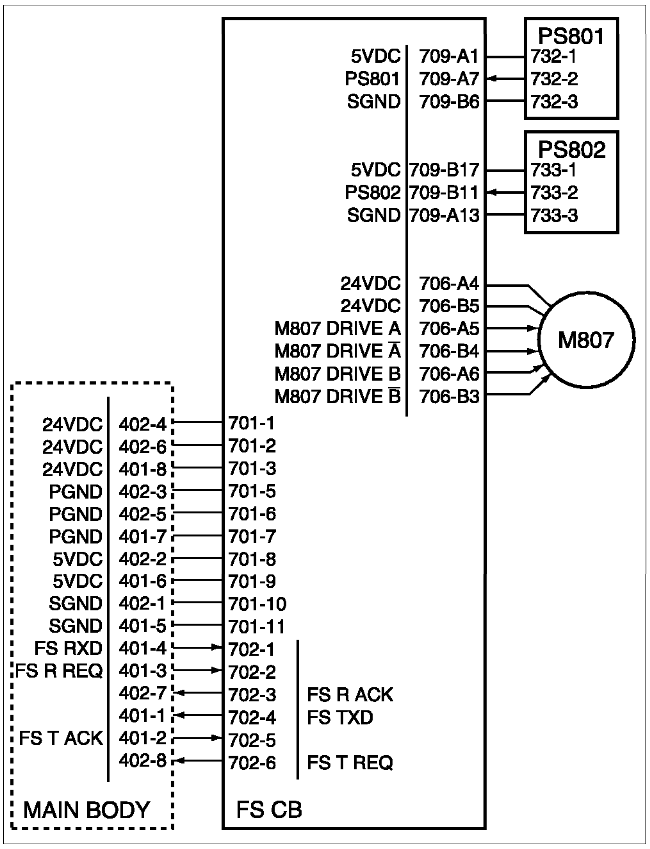
(2) SD801 DRIVE (FS CB → SD801)
SD801 (gate) ON/OFF drive signal
[L]: SD801 ON
[H]: SD801 OFF

(3) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(4) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(5) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

[5] Conveyance Drum (M807) Control


PS801
5VDC 709-A1 732-1
PS801 709-A7 732-2
SGND 709-B6 732-3
PS802
5VDC 709-B17 733-1
PS802 709-B11 733-2
SGND 709-A13 733-3
24VDC 706-A4
24VDC 706-B5
M807 DRIVE A 706-A5
M807 DRIVE $\overline{A}$ 706-B4
M807 DRIVE B 706-A6
M807 DRIVE $\overline{B}$ 706-B3
M807
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
MAIN BODY
FS CB

The paper that has been sent to tray 2/3 is exited into the respective tray by the conveyance drum. The conveyance drum is driven by M807 (conveyance drum drive) which is controlled by the FS CB (FS control board).

1. Operation

a. Conveyance operation

When PS802 (conveyance drum entrance detect) detects the leading edge of the paper and goes ON, M807 is turned ON after the specified time, and the conveyance drum starts to rotate.

To convey one sheet of paper, the M807 is switched through a predetermined sequence of three speeds. When the conveyance drum reaches the standby position, the motor is switched OFF.

During this time, the drum makes one revolution which includes gripping, conveying, and releasing the paper.

b. M807 speed control

When the conveyance drum rotation pulses reach a predetermined number, the rotation speed is changed.

2. Signals

a. Input signals

(1) PS801 (PS801 → FS CB)
Encoder slit detection signal
[L]: Slit is detected
[H]: Slit is not detected

(2) PS802 (PS802 → FS CB)
Paper detection signal at the exit section entrance of the tray 1.
[L]: Paper is not detected
[H]: Paper is detected

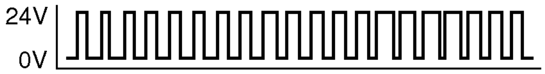
(3) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(4) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

(5) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

b. Output signals

(1) M807 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M807)
M807 (conveyance drum drive) ON/OFF drive signal

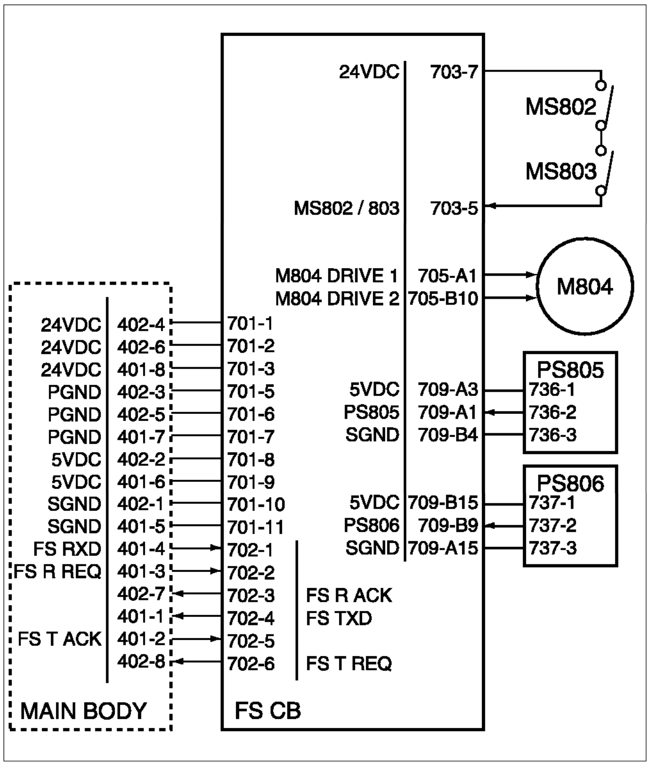


(2) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(3) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(4) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

[6] Tray Up/Down (M804) Control


24VDC
703-7
MS802
MS803
MS802 / 803
703-5
M804 DRIVE 1
705-A1
M804 DRIVE 2
705-B10
M804
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
5VDC 709-A3
PS805 709-A1
SGND 709-B4
PS805
736-1
736-2
736-3
5VDC 709-B15
PS806 709-B9
SGND 709-A15
PS806
737-1
737-2
737-3
MAIN BODY
FS CB

The paper exit position of the conveyance drum is always fixed, and tray switching is carried out by raising or lowering tray 2/3. The up/down motion is achieved by transmitting the driving force of motor M804 (tray up/down) to the lift wires connected to each tray. This operation is controlled by the FS CB (FS control board).

1. Operation

Normally, the paper exit position of the conveyance drum is aligned with tray 2. Therefore no lift operation is carried out when tray 2 is selected.

a. Upward movement

When tray 3 is selected as paper exit tray and PS806 (tray lower limit detect) is ON, M804 goes ON (forward rotation). Tray 2 and tray 3 are then raised simultaneously.
When the upward movement causes tray 2 to switch PS805 (tray upper limit detect) to ON, M804 goes OFF and the upward movement stops. Tray 3 is now aligned with the paper exit position of the conveyance drum.

b. Downward movement

When tray 2 is selected as paper exit tray and PS805 is ON, M804 goes ON (reverse rotation). Tray 2 and tray 3 are then lowered simultaneously.
When the downward movement causes tray 3 to switch PS806 to ON, M804 goes OFF and the upward movement stops. Tray 2 is now aligned with the paper exit position of the conveyance drum.

c. Tray squeeze prevention

During tray upward or downward movement, if a foreign object is caught between the tray and the finisher unit, MS802 (up/down (upper)) or MS803 (up/down (lower)) will mechanically go OFF, causing the power supply line of M804 to be cut off.

2. Signals

a. Input signals

(1) PS805 (PS805 → FS CB)
Tray 2 upper limit detection signal.
[L]: Upper limit is detected
[H]: Upper limit is not detected

(2) PS806 (PS806 → FS CB)
Tray 3 lower limit detection signal.
[L]: Lower limit is detected
[H]: Lower limit is not detected

(3) MS802/MS803 (MS802/MS803 → FS CB)
Power supply line for M804. Forcibly interrupted when a foreign object is caught between tray and finisher unit.

(4) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(5) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

(6) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

b. Output signals

(1) M804 DRIVE 1, 2 (FS CB → M804)
M804 drive signals.
M804 rotation direction is controlled by switching the current direction of these two signals.

State	M804 DRIVE 1	M804 DRIVE 2
Upward movement	H	L
Downward movement	L	H
Stop	H	H

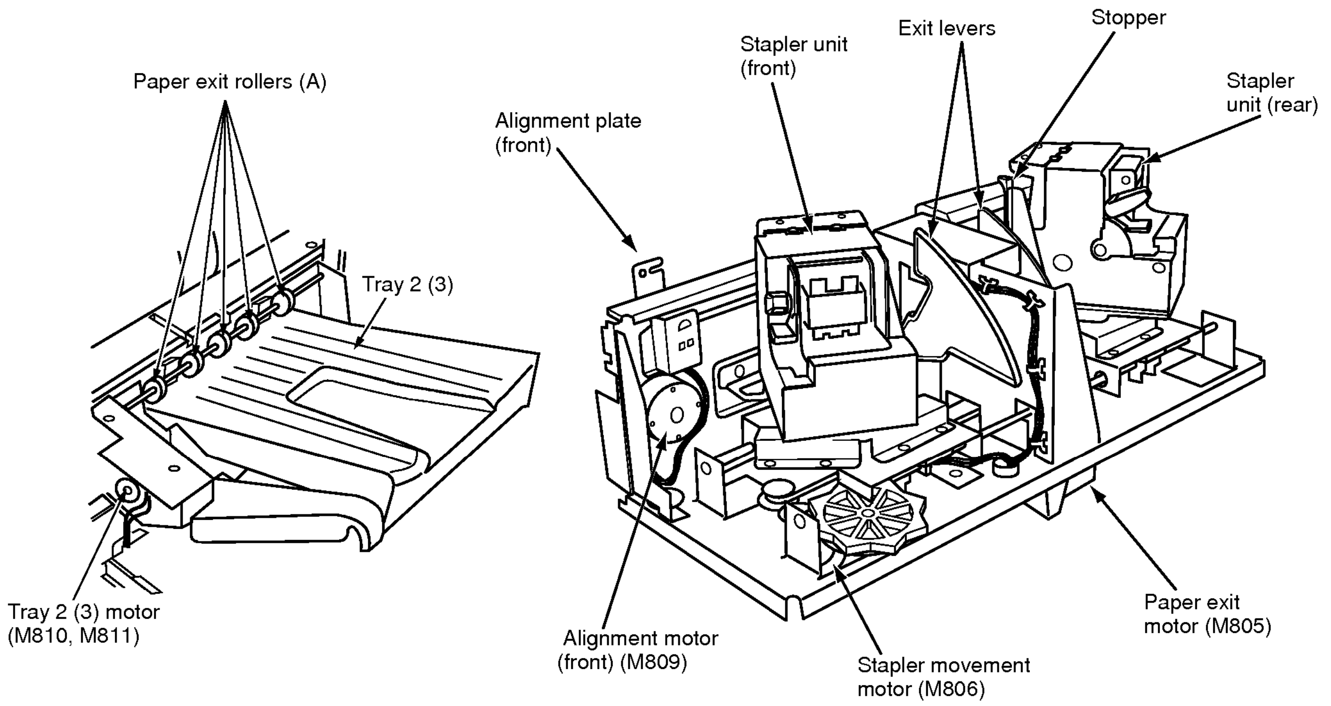
(2) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(3) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(4) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

PAPER EXIT/STAPLER UNIT SECTION

[1] Construction


Paper exit rollers (A)
Tray 2 (3)
Tray 2 (3) motor (M810, M811)
Alignment plate (front)
Stapler unit (front)
Exit levers
Stopper
Stapler unit (rear)
Alignment motor (front) (M809)
Stapler movement motor (M806)
Paper exit motor (M805)

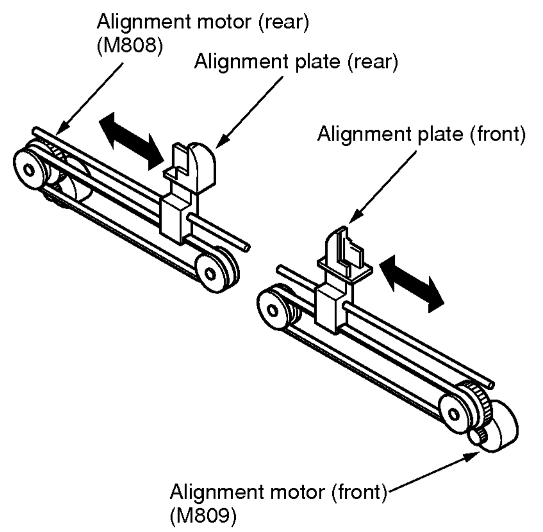
[2] Mechanism

	Mechanisms	Methods
*1	Paper alignment	Separate guides for front and rear
*2	Paper exit	Exit lever
*3	Paper stacking	Paper exit roller (A)
	Stapler unit movement	Stapler unit movement motor
*4	Staple accident prevention	Shutter cover

*1:Paper alignment

The paper being conveyed by the conveyance drum is aligned by the alignment plates. Separately driven guides are provided for front and rear, to allow independent movement and asymmetrical operation in shift mode.

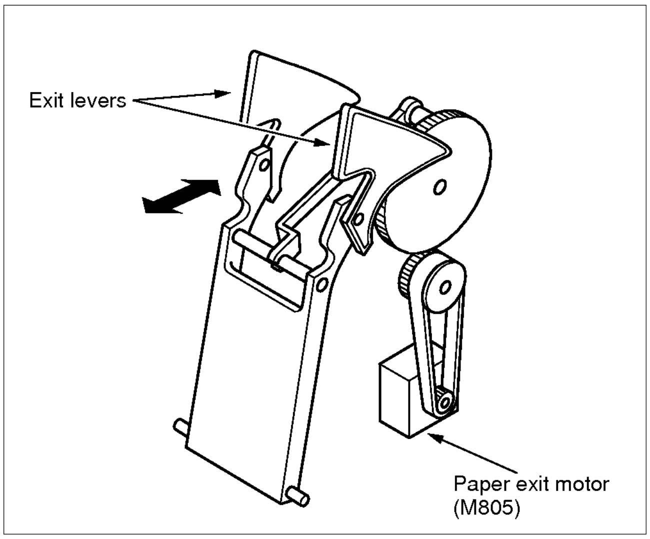
The alignment plates are driven by the alignment motor (front) (M809) and alignment motor (rear) (M808).


Alignment motor (rear) (M808)
Alignment plate (rear)
Alignment plate (front)
Alignment motor (front) (M809)

∗2:Paper exit

The paper being supplied by the conveyance drum is conveyed to the stapling position, regardless of whether stapling will be carried out or not. If stapling is enabled, the stapled stack is exited to tray 2 or 3 after stapling. If stapling is not enabled, each sheet is exited individually to tray 2 or 3.

This movement is performed by the exit levers which are driven by the paper exit motor (M805).


Exit levers
Paper exit motor
(M805)

∗3:Paper stacking

A spring arrangement in the bottom of tray 2 and tray 3 lifts the bottom plate up, so that it always is in direct contact or not more than 3 mm away from the paper exit roller assembly.

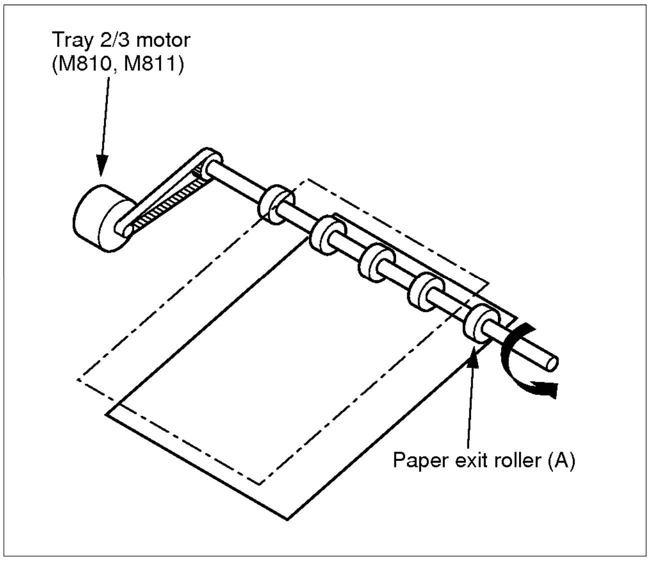
[Operation in through mode]

The paper is stacked on the tray by the movement of the exit lever and the rotation of the paper exit roller (A) of each tray. When the paper exit roller (A) turns, the tip of the paper is grasped by the rollers and is stacked under the rollers.

[Operation in offset mode]

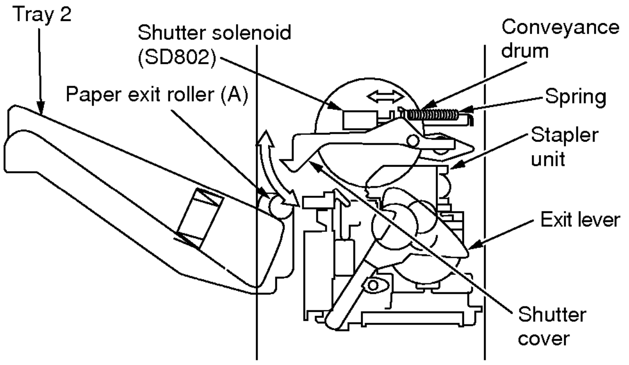
The paper is offset by the alignment plates (front/rear), and is stacked on the tray by the movement of the exit lever and the rotation of the paper exit roller (A) of each tray.

By repeating this action, the tip of the paper is grasped by the rollers and is stacked under the rollers.


Tray 2/3 motor
(M810, M811)
Paper exit roller (A)

∗4:Staple accident prevention

A shutter cover is provided to prevent the user from inadvertently inserting a finger etc. into the stapler. The shutter cover is driven by the SD802 (shutter solenoid) which is ON during stapler operation and during stapler unit movement. The shutter cover blocks the clearance between the paper exit tray and the stapler unit.


Tray 2
Shutter solenoid
(SD802)
Paper exit roller (A)
Conveyance
drum
Spring
Stapler
unit
Exit lever
Shutter
cover

[3] Disassembly and Assembly

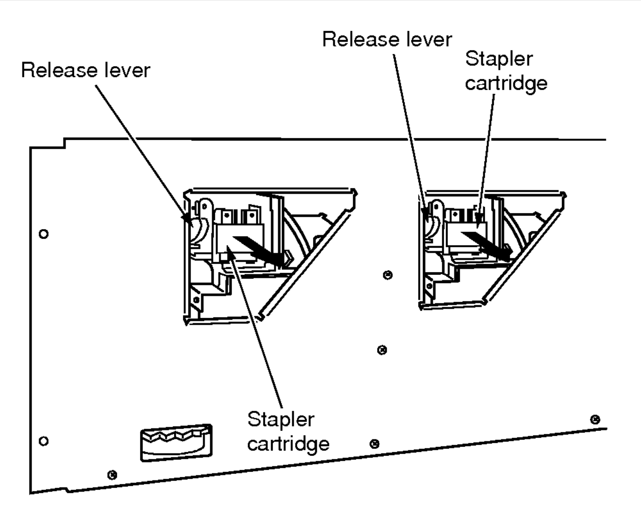
1. Replacing the stapler cartridge

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Push the release lever to remove the finisher from the main body.

(2) Push the release levers of the stapler units down and remove the stapler cartridges.


Release lever
Release lever
Stapler cartridge
Stapler cartridge

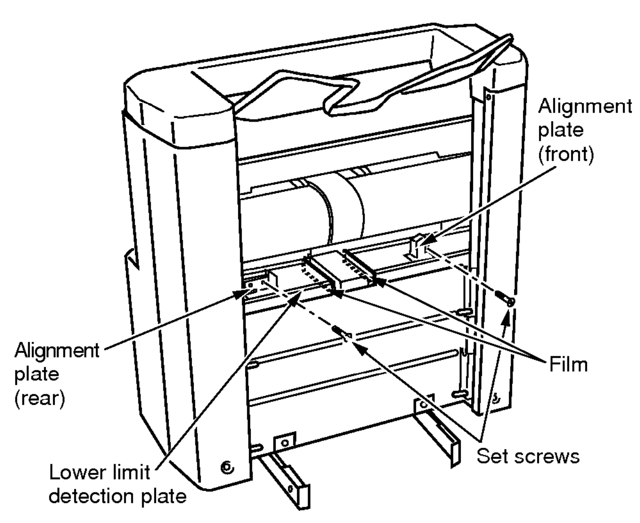
(3) Push the new stapler cartridge all the way in, until it is locked in the stapler unit.

2. Removing and Re-installing the stapler unit

⚠**Caution: Be sure that the power cord has been unplugged from the power outlet.**

a. Procedure

(1) Remove the set screw (one each), then remove the alignment plate (front) and alignment plate (rear).

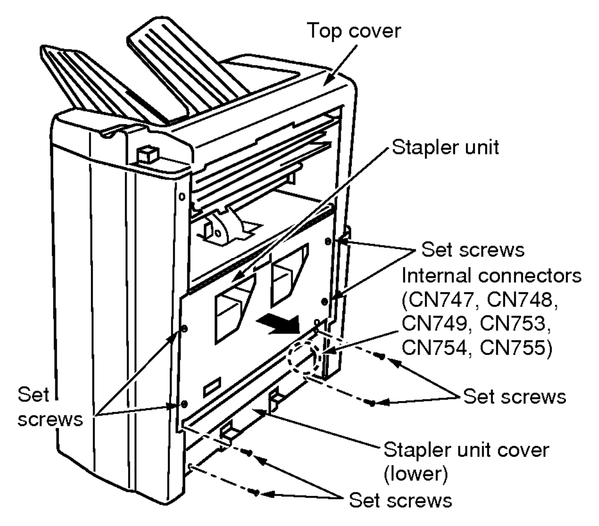

Alignment plate (front)
Alignment plate (rear)
Film
Set screws
Lower limit detection plate

(2) Remove the four set screws, then remove the stapler unit cover (lower).

(3) Disconnect the six connectors (CN747, CN748, CN749, CN753, CN754, CN755).

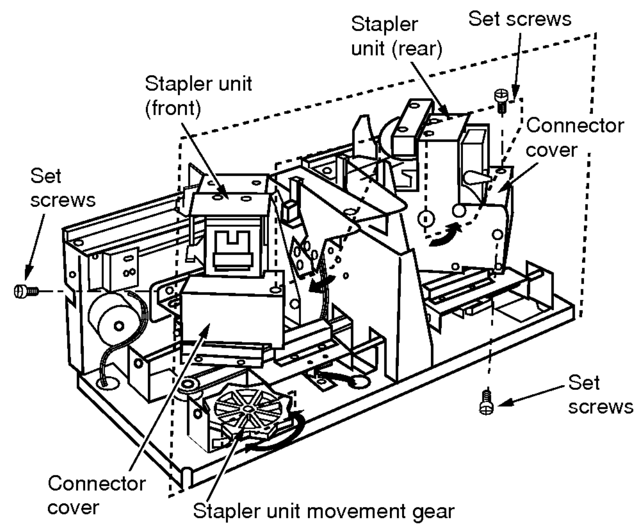
(4) Remove the four set screws, then pull the stapler unit out.

Caution: Take care not to bend the film on the exit side during re-installation.


Top cover
Stapler unit
Set screws
Internal connectors (CN747, CN748, CN749, CN753, CN754, CN755)
Set screws
Set screws
Stapler unit cover (lower)
Set screws

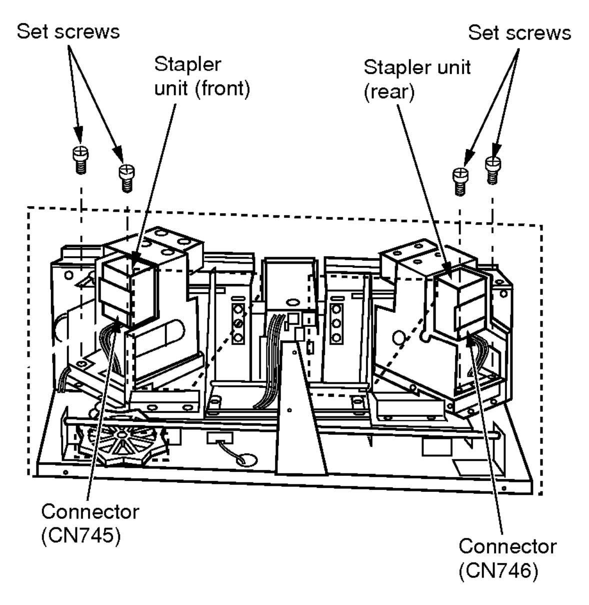
(5) Turn the stapler unit gear, then open the stapler unit (front) and stapler unit (rear) towards the outside.

(6) Remove the two set screws each, then remove the connector cover of each stapler unit.

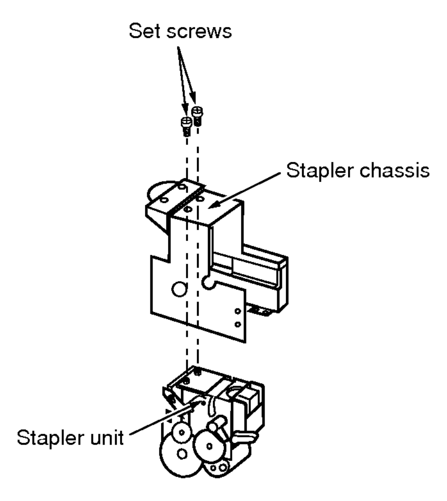

Stapler unit (rear)
Set screws
Stapler unit (front)
Connector cover
Set screws
Set screws
Connector cover
Stapler unit movement gear

(7) Remove the two set screws each, then remove the stapler unit (front) and stapler unit (rear).

(8) Disconnect the connector (CN745, CN746) from each stapler unit.

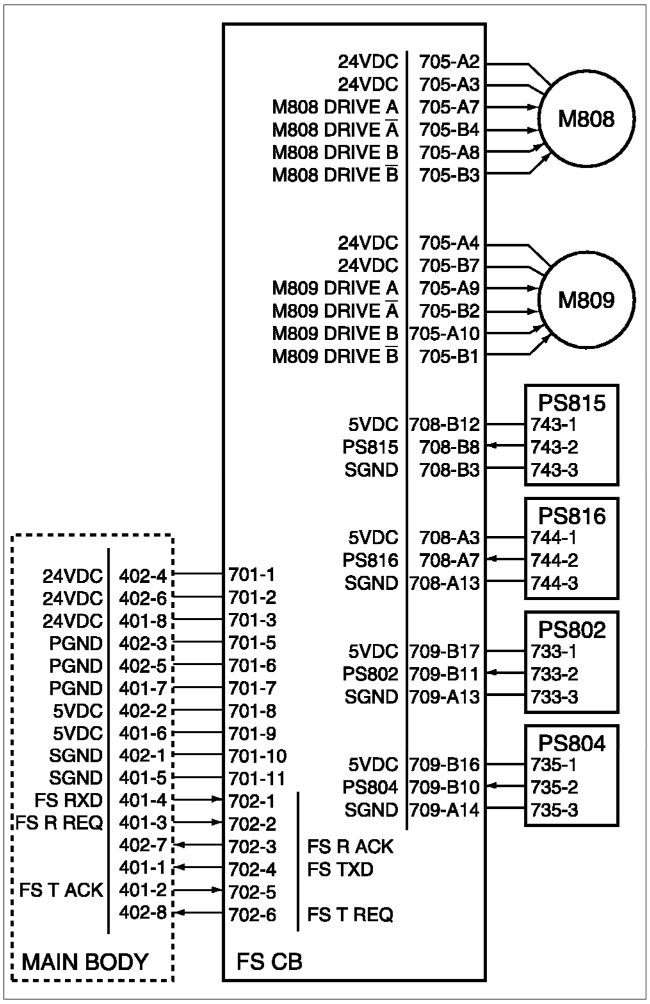

Set screws
Stapler unit (front)
Stapler unit (rear)
Set screws
Connector (CN745)
Connector (CN746)

(9) Remove the two set screws, then remove the stapler unit.


Set screws
Stapler chassis
Stapler unit

(10) Re-install the stapler unit in the opposite sequence to removal.

[4] Paper Alignment Control


24VDC 705-A2
24VDC 705-A3
M808 DRIVE A 705-A7
M808 DRIVE $\overline{A}$ 705-B4
M808 DRIVE B 705-A8
M808 DRIVE $\overline{B}$ 705-B3
M808
24VDC 705-A4
24VDC 705-B7
M809 DRIVE A 705-A9
M809 DRIVE $\overline{A}$ 705-B2
M809 DRIVE B 705-A10
M809 DRIVE $\overline{B}$ 705-B1
M809
5VDC 708-B12 743-1
PS815 708-B8 743-2
SGND 708-B3 743-3
PS815
5VDC 708-A3 744-1
PS816 708-A7 744-2
SGND 708-A13 744-3
PS816
5VDC 709-B17 733-1
PS802 709-B11 733-2
SGND 709-A13 733-3
PS802
5VDC 709-B16 735-1
PS804 709-B10 735-2
SGND 709-A14 735-3
PS804
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
MAIN BODY
FS CB

The paper exited by the conveyance drum is aligned on the center of the respective exit tray by the alignment plates driven by the alignment motor (rear) (M808) and alignment motor (front) (M809). M808 and M809 are controlled by the FS CB (FS control board).

1. Operation

a. Normal alignment operation

The alignment plate (front) and alignment plate (rear) work symmetrically, with the tray center serving as the reference point. The guides repeat the alignment and release pattern. The rotation direction of M809 and M808 is therefore always opposite.

The ON timing of M809 and M808 is referenced to the ON/OFF state of PS802 (conveyance drum entrance detect) or PS804 (paper through detect). Which sensor is used depends on the paper size.

b. Shift alignment operation

During the first alignment operation, the alignment plate (front) and alignment plate (rear) are front and rear symmetric with respect to operation as reference with the center of the tray and paper is exited.

During the next alignment operation, the alignment plate (front) and alignment plate (rear) are not front and rear symmetric with respect to operation as reference with the center of the tray and paper is exited at the position shift to the first copy.

From now on, these operation are repeated.

c. Staple mode operation

In staple mode, M809 and M808 perform release operation after stapling is completed. The ON/OFF timing is referenced to the OFF timing of the stapler motor that has last finished to operate (M802 or M803).

2. Signals

a. Input signals

(1) PS802 (PS802 → FS CB)
Paper detection signal at the paper conveyance section entrance of the tray 2/3.
[L]: Paper is not detected
[H]: Paper is detected

(2) PS804 (PS804 → FS CB)
Paper detection signal at the conveyance drum circumference.
[L]:Paper is not detected
[H]: Paper is detected

(3) PS815 (PS815 → FS CB)
Home position detection signal for alignment plate (rear).
[L]:Alignment plate is not in home position
[H]:Alignment plate is in home position

(4) PS816 (PS816 → FS CB)
Home position detection signal for alignment plate (front).
[L]:Alignment plate is in home position
[H]:Alignment plate is not in home position

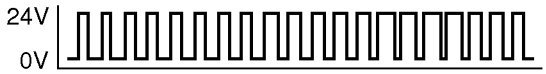
(5) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(6) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

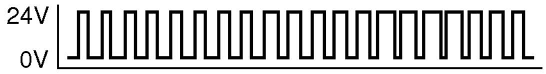
(7) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

b. Output signals

(1) M808 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M808)
M808 (alignment motor (rear)) ON/OFF drive signal



(2) M809 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M809)
M809 (alignment motor (front)) ON/OFF drive signal

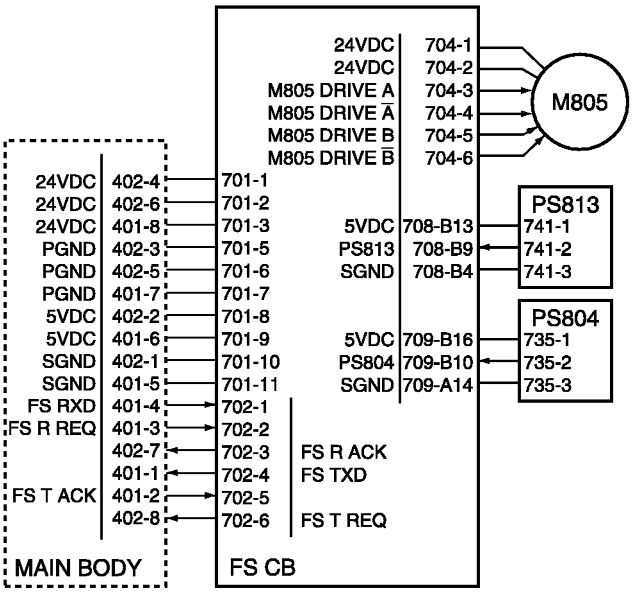


(3) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(4) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(5) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

[5] Paper Exit (M805) Control


24VDC 704-1
24VDC 704-2
M805 DRIVE A 704-3
M805 DRIVE $\overline{A}$ 704-4
M805 DRIVE B 704-5
M805 DRIVE $\overline{B}$ 704-6
M805
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
MAIN BODY
FS CB
5VDC 708-B13 741-1
PS813 708-B9 741-2
SGND 708-B4 741-3
PS813
5VDC 709-B16 735-1
PS804 709-B10 735-2
SGND 709-A14 735-3
PS804

When the alignment or stapling operation is completed, the paper is pushed out to tray 2 or tray 3 by the exit levers. The levers are driven by M805 (paper exit motor) via a set of gears. Operation is controlled by the FS CB (FS control board).

1. Operation

a. Non-stapling mode operation

The drive gear for the exit levers is controlled using the home position detected by PS813 (paper exit motor HP).

When PS804 (paper through detect) detects the paper leading edge and goes ON, M805 goes ON for the specified time and drives the exit levers. This causes PS813 to go OFF.

The exit levers are connected to the circumference of the drive gear. Within one rotation of the gear, the paper is pushed out (forwarding motion) and returned to the standby position (return motion).

When PS813 goes ON, the exit levers have returned to the standby position and M805 is turned OFF.

b. Stapling mode operation

In stapling mode, when the stapler motor (M802 or M803) that has last finished to operate goes OFF, M805 goes ON for the specified time and drives the exit levers. Other operations are the same as for non-stapling mode.

2. Signals

a. Input signals

(1) PS804 (PS804 → FS CB)
Paper detection signal at the conveyance drum circumference.
[L]: Paper is not detected
[H]: Paper is detected

(2) PS813 (PS813 → FS CB)
Home position detection signal for exit lever.
[L]: Exit lever is not in home position
[H]: Exit lever is in home position

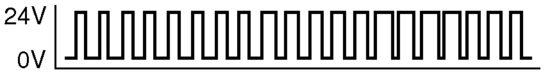
(3) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(4) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

(5) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

b. Output signals

(1) M805 DRIVE A, Ā, B, B̄ (FS CB → M805)
M805 (paper exit) ON/OFF drive signal

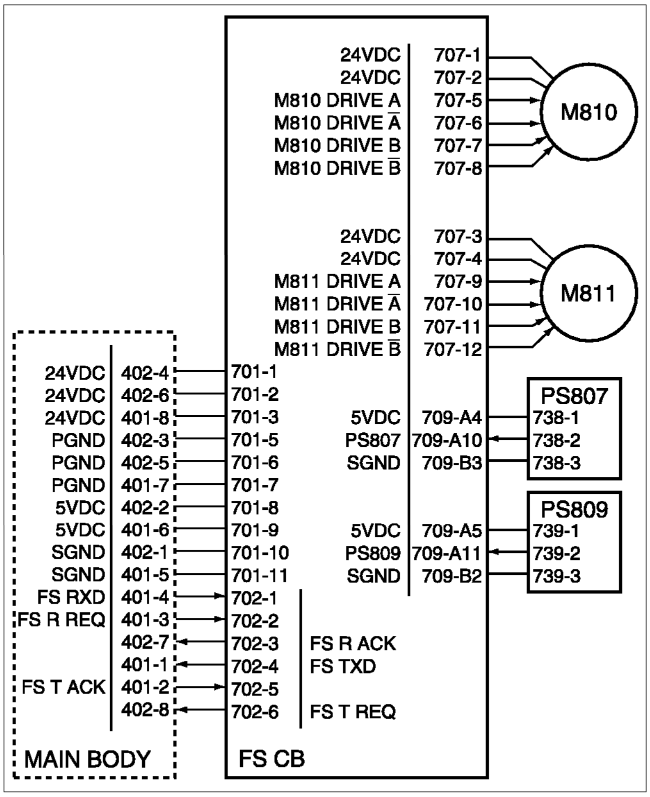


(2) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(3) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(4) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

[6] Paper Stacking Control


24VDC 707-1
24VDC 707-2
M810 DRIVE A 707-5
M810 DRIVE Ā 707-6
M810 DRIVE B 707-7
M810 DRIVE B̄ 707-8
M810
24VDC 707-3
24VDC 707-4
M811 DRIVE A 707-9
M811 DRIVE Ā 707-10
M811 DRIVE B 707-11
M811 DRIVE B̄ 707-12
M811
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
5VDC 709-A4 738-1
PS807 709-A10 738-2
SGND 709-B3 738-3
PS807
5VDC 709-A5 739-1
PS809 709-A11 739-2
SGND 709-B2 739-3
PS809
MAIN BODY
FS CB

The paper exited to tray 2 or tray 3 is placed on top of the paper exit rollers of the respective tray. The drive force of motor M810 (tray 2) or M811 (tray 3) is used to operate the rollers and stack the paper on the tray.

M810 and M811 operation is controlled by the FS CB (FS control board).

1. Operation

a. Paper stacking control

When M805 (paper exit) goes ON, M810 or M811 are set to ON after the specified time. When M805 goes OFF, M810 or M811 are set to OFF after the specified time. While the motor is ON, the rollers of the tray are driven and the paper that was placed on the rollers is stacked.

The stacking section of the tray is pushed up by a spring. When the maximum allowable number of sheets has been stacked, the stacking section contacts the bottom of the tray and PS 807 (tray 2 stack-full detect) or PS 809 (tray 3 stack-full detect) goes ON.

When PS807 or PS809 are ON, no copy operation will be carried out when the respective tray is selected.

b. Tray auto-switching control

When copying is carried out with tray 2 or tray 3 specified as output tray and the specified tray becomes full, causing PS807 or PS809 to become ON, the output tray is automatically switched to the other tray.

This operation is also valid if tray 1 is specified as the output tray. The output tray will be switched to tray 2 or tray 3. Normally, tray 2 will be selected. If it is full, tray 3 will be selected. Switching from tray 2 or tray 3 to tray 1 is not possible.

2. Signals

a. Input signals

(1) PS807 (PS807 → FS CB)
Tray 2 stack-full detection signal
[L]: Stack full condition not detected
[H]: Stack full condition detected

(2) PS809 (PS809 → FS CB)
Tray 3 stack-full detection signal
[L]: Stack full condition not detected
[H]: Stack full condition detected

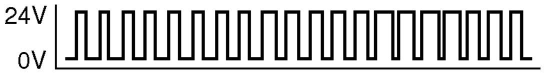
(3) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(4) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher

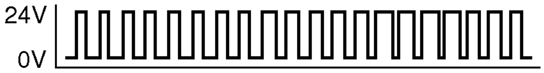
(5) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher

b. Output signals

(1) M810 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M810)
M810 (tray 2) ON/OFF drive signal



(2) M811 DRIVE A, $\overline{A}$, B, $\overline{B}$ (FS CB → M811)
M811 (tray 3) ON/OFF drive signal

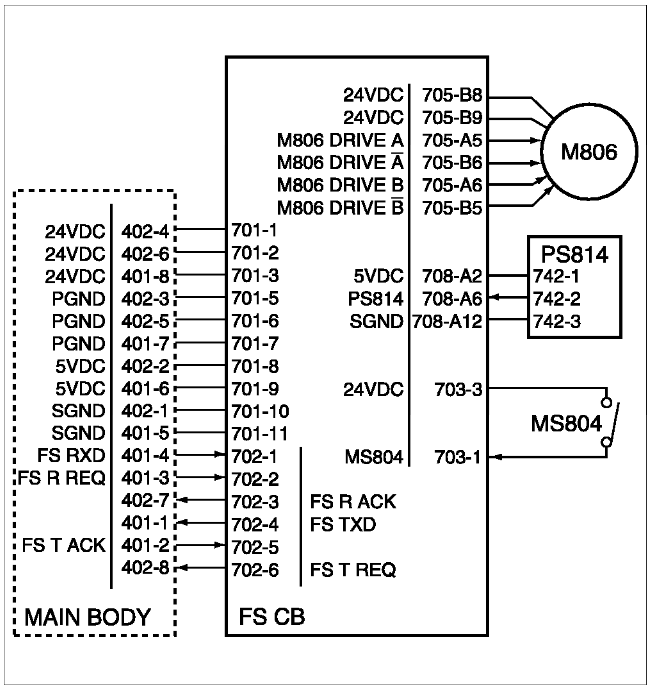


(3) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(4) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body

(5) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body

[7] Stapler Movement (M806) Control


24VDC 705-B8
24VDC 705-B9
M806 DRIVE A 705-A5
M806 DRIVE Ā 705-B6
M806 DRIVE B 705-A6
M806 DRIVE B̄ 705-B5
M806
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
5VDC 708-A2 742-1
PS814 708-A6 742-2
SGND 708-A12 742-3
PS814
24VDC 703-3
MS804 703-1
MS804
MAIN BODY
FS CB

The position of the stapler units at the front and rear with respect to the paper is adjusted using the driving force of the stapler movement motor (M806). Operation of M806 is controlled by the FS CB (FS control board).

1. Operation

Normally, the stapler units are stationary, positioned so that the stapling is carried out parallel to the paper edge. This position is detected by PS814 (stapler unit HP).
When the stapling position is changed according to a command from the main body, M806 goes ON and the two stapler units at the front and rear are moved simultaneously. The M806 OFF timing is controlled using the number of drive step from when PS814 went OFF.

2. Signals

a. Input signals

(1) PS814 (PS814 → FS CB)
Home position detection signal for stapler unit
[L]: Stapler unit is in home position
[H]: Stapler unit is not in home position

(2) MS804 (MS804 → FS CB)
Power supply line for M802 (stapler (rear)), M803 (stapler (front)), and M806. Forcibly interrupted when the shutter is raised.

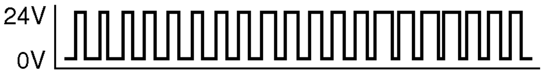
(3) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher

(4) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher

(5) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher

b. Output signals

(1) M806 DRIVE A, Ā, B, B̄ (FS CB → M806)
M806 (stapler movement) ON/OFF drive signal

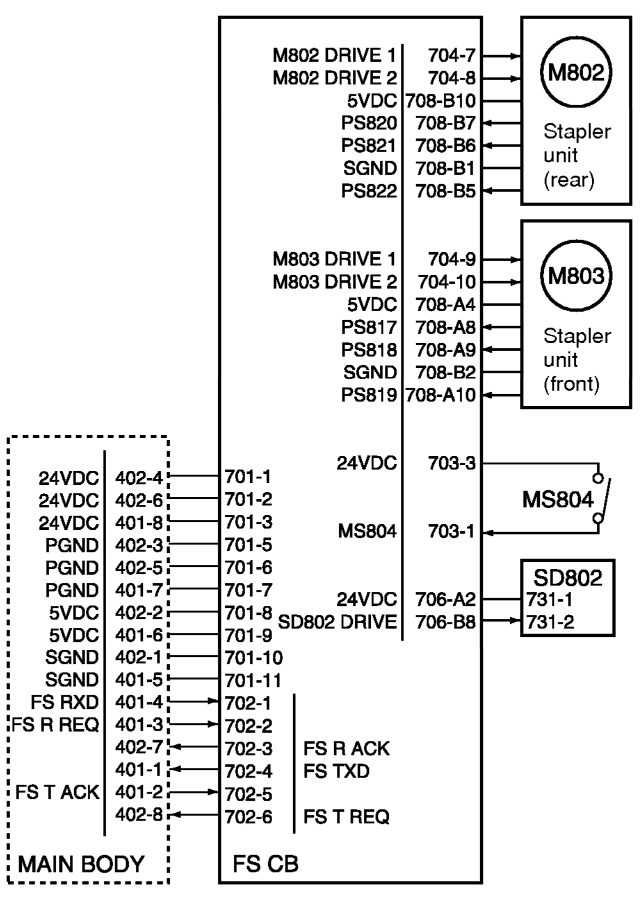


(2) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(3) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(4) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

[8] Stapler Control


M802 DRIVE 1 704-7
M802 DRIVE 2 704-8
5VDC 708-B10
PS820 708-B7
PS821 708-B6
SGND 708-B1
PS822 708-B5
M802
Stapler unit (rear)
M803 DRIVE 1 704-9
M803 DRIVE 2 704-10
5VDC 708-A4
PS817 708-A8
PS818 708-A9
SGND 708-B2
PS819 708-A10
M803
Stapler unit (front)
24VDC 703-3
MS804 703-1
MS804
24VDC 706-A2
SD802 DRIVE 706-B8
SD802
731-1
731-2
24VDC 402-4 701-1
24VDC 402-6 701-2
24VDC 401-8 701-3
PGND 402-3 701-5
PGND 402-5 701-6
PGND 401-7 701-7
5VDC 402-2 701-8
5VDC 401-6 701-9
SGND 402-1 701-10
SGND 401-5 701-11
FS RXD 401-4 702-1
FS R REQ 401-3 702-2
402-7 702-3 FS R ACK
401-1 702-4 FS TXD
FS T ACK 401-2 702-5
402-8 702-6 FS T REQ
MAIN BODY
FS CB

Stapling is carried out by driving M802 (stapler (rear)) and M803 (stapler (front)). Operation of M802 and M803 is controlled by the FS CB (FS control board).

The maximum number of sheets for stapling and the operation to be carried out when the number is exceeded can be set with 25 mode of the main body. For details, refer to the adjustment section of the main body

1. Operation

a. Stapling operation

M803 goes ON when the last paper alignment operation is completed, and goes OFF when PS817 (stapler HP (front)) goes ON.

This causes the front side of the paper to be stapled.

When stapling at two locations is carried out, M802 goes ON after the specified time, measured from the point when M803 goes ON. It goes OFF when PS820 (stapler HP (rear)) goes ON.

b. Shutter control

During stapler unit movement and during stapling operation, the SD802 (shutter) is ON, causing the shutter to block the clearance between the paper exit tray and the stapler unit.

c. No-staple detection

The front and rear stapler units are each equipped with a no-staple sensor (PS818, PS821). When staples have run out and the no-staple condition is detected, a message is shown on the display of the main body.

2. Signals

a. Input signals

(1) PS817 (stapler unit (front) → FS CB)
Home position detection signal for M803
[L]: Home position is detected
[H]: Home position is not detected

(2) PS818 (stapler unit (front) → FS CB)
Stapler unit (front) no-staple detection signal.
[L]: No-staple condition is detected
[H]: No-staple condition is not detected

(3) PS820 (stapler unit (rear) → FS CB)
Home position detection signal for M802
[L]: Home position is detected
[H]: Home position is not detected

(4) PS821 (stapler unit (rear) → FS CB)
Stapler unit (rear) no-staple detection sensor signal
[L]: No-staple condition is detected
[H]: No-staple condition is not detected

(5) MS804 (MS804 → FS CB)
Power supply line for M802 (stapler (rear)), M803 (stapler (front)), and M806 (stapler movement). Forcibly interrupted when the shutter is raised.

(6) FS RXD (MAIN BODY → FS CB)
Serial data line for transmitting operation status information from control board in main body to finisher.

(7) FS R REQ (MAIN BODY → FS CB)
Send request signal from main body to finisher.

(8) FS T ACK (MAIN BODY → FS CB)
Send enable signal from main body to finisher.

(9) PS819 (Stapler unit (front) → FS CB)
stapler unit (front) no-staple sensor signal at the stapling position.
[L]: No-staple condition is detected
[H]: No-staple condition is not detected

(10) PS822 (Stapler unit (rear) → FS CB)
stapler unit (rear) no-staple sensor signal at the stapling position.
[L]: No-staple condition is detected
[H]: No-staple condition is not detected

b. Output signals

(1) M802 DRIVE 1, 2 (FS CB → stapler unit (rear))
M802 drive signals.
M802 rotation direction is controlled by switching the current direction of these two signals.

(2) M803 DRIVE 1, 2 (FS CB → stapler unit (front))
M803 drive signals.
M803 rotation direction is controlled by switching the current direction of these two signals.

(3) SD802 DRIVE (FS CB → SD802)
SD802 (shutter) ON/OFF drive signal.
[L]: SD802 ON
[H]: SD802 OFF

(4) FS TXD (FS CB → MAIN BODY)
Serial data line for transmitting operation status information from finisher to main body control board.

(5) FS T REQ (FS CB → MAIN BODY)
Send request signal from finisher to main body.

(6) FS R ACK (FS CB → MAIN BODY)
Send enable signal from finisher to main body.

OTHER CONTROL FUNCTIONS

[1] Power-on Operation

When the main body SW2 (sub power) is set to ON, the finisher performs the following initialization sequence.

1. SD802 (shutter) goes ON and the shutter cover closes.

2. M808 (alignment (rear)) and M809 (alignment (front)) go ON and the alignment plates (front/rear) perform home position search.

3. M807 (conveyance drum drive) goes ON and the conveyance drum performs home position search.

4. M806 (stapler movement) goes ON and the stapler unit moves to the standby position.

5. SD802 goes OFF and the shutter cover opens.

6. M805 (paper exit) goes ON and the exit lever is driven for one operation.

7. Lower limit position detection for tray 2 and tray 3 is carried out. If PS806 (tray lower limit detect) does not go ON, M804 (tray up/down) goes ON, causing tray 2 and tray 3 to move downward.

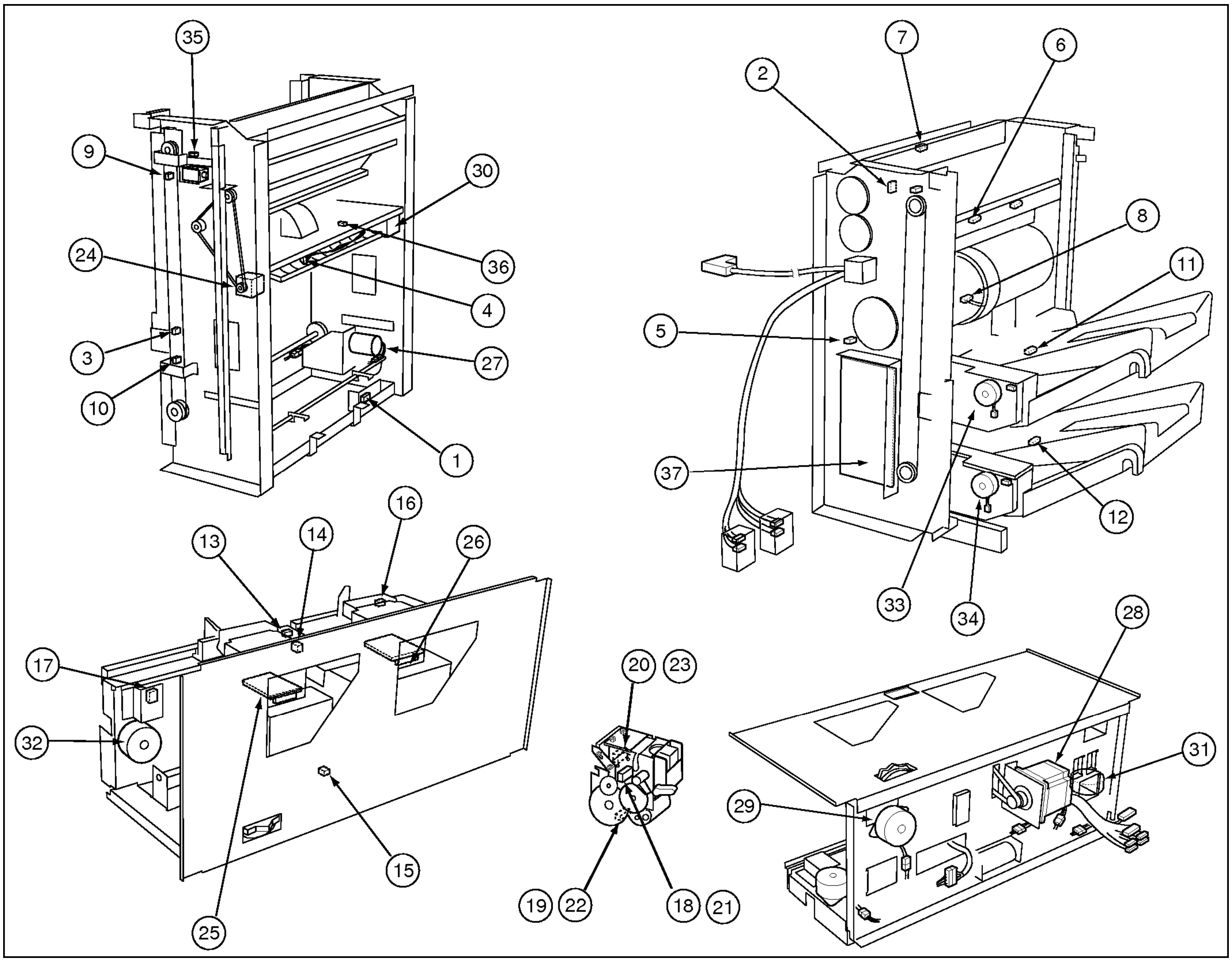
2

DIAGRAMS

2. DIAGRAMS

ELECTRICAL PARTS LAYOUT DRAWING ... 2-1
CONNECTOR LAYOUT DRAWING 2-2
FS-105 OVERALL WIRING DIAGRAM 2-3
FS-105 TIMING CHART (A4, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS/TWO PLACES STAPLING) 2-7
FS-105 TIMING CHART (A3, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS/TWO PLACES STAPLING) 2-7
FS-105 TIMING CHART (A5R, TRAY 2 (FACE DOWN), SIX SHEETS, EVERY TWO SHEETS/ SHIFT STPLING) 2-8

ELECTRICAL PARTS LAYOUT DRAWING



1. Switches and Sensors

①	MS801	Inter lock MS
②	MS802	Up/down MS (UPPER)
③	MS803	Up/down MS (LOWER)
④	MS804	Stapler safety MS
⑤	PS801	Conveyance drum position detect sensor
⑥	PS802	Conveyance drum entrance detect sensor
⑦	PS803	Tray 1 paper exit detect sensor
⑧	PS804	Paper through detect sensor
⑨	PS805	Tray upper limit detect sensor
⑩	PS806	Tray lower limit detect sensor
⑪	PS807	Tray 2 full-stack detect sensor
⑫	PS809	Tray 3 full-stack detect sensor
⑬	PS812	Stapler no paper detect sensor
⑭	PS813	Paper exit motor HP sensor
⑮	PS814	Stapler unit HP sensor
⑯	PS815	Alignment motor (rear) sensor
⑰	PS816	Alignment motor HP (front) sensor
⑱	PS817	Stapler HP sensor (front)
⑲	PS818	No-staple sensor (front)
⑳	PS819	No-staple (F) (lead edge) sensor
㉑	PS820	Stapler HP sensor (rear)
㉒	PS821	No-staple sensor (rear)
㉓	PS822	No-staple (R) (lead edge) sensor

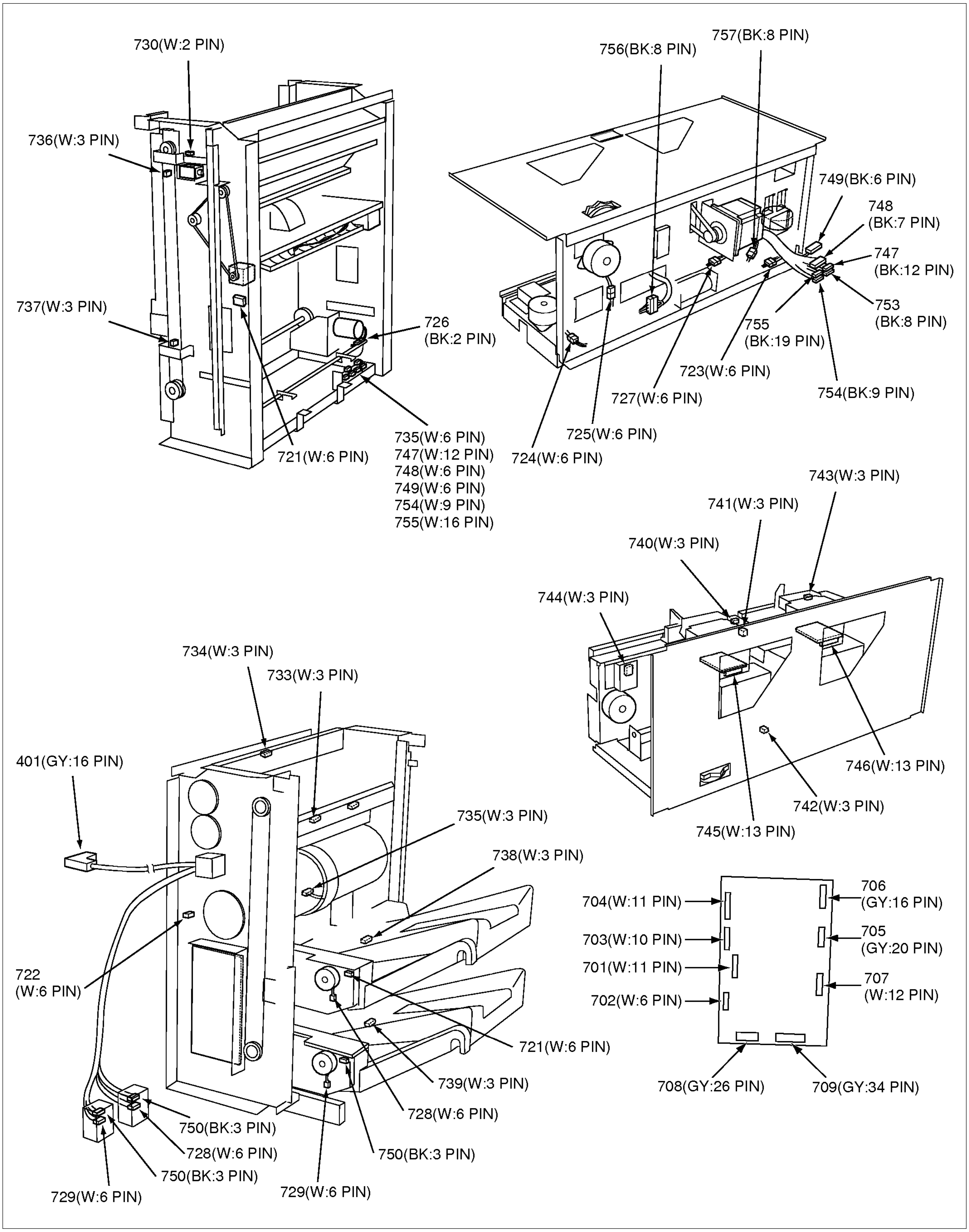
2. Loads

㉔	M801	Paper feed motor
㉕	M802	Stapler motor (front)
㉖	M803	Stapler motor (rear)
㉗	M804	Tray up/down motor
㉘	M805	Paper exit motor
㉙	M806	Stapler movement motor
㉚	M807	Conveyance drum drive motor
㉛	M808	Alignment motor (rear)
㉜	M809	Alignment motor (front)
㉝	M810	Tray 2 motor
㉞	M811	Tray 3 motor
㉟	SD801	Gate solenoid
㊱	SD802	Shutter solenoid

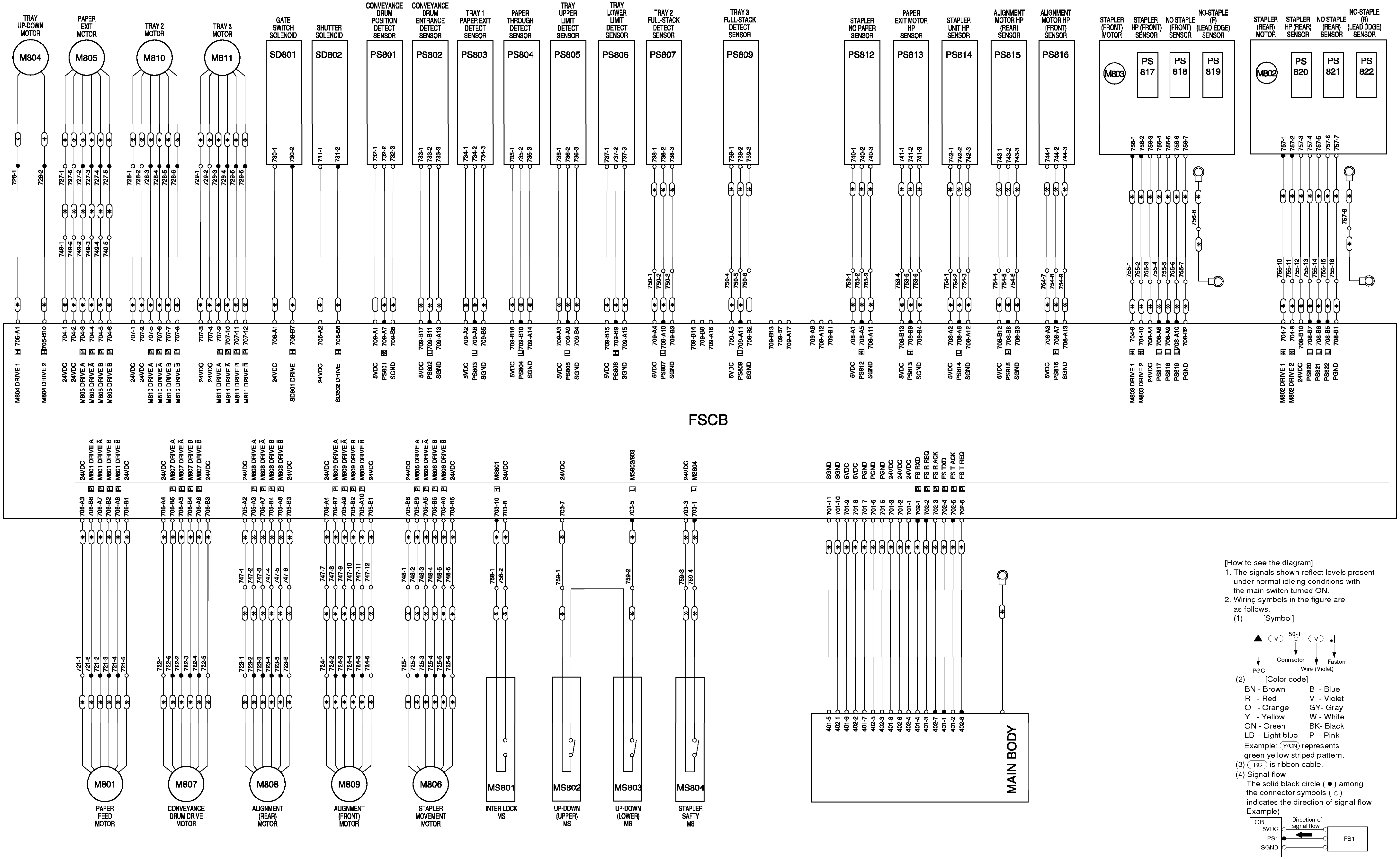
3. PCBs and Others

㊲	FSCB	FS control board

CONNECTOR LAYOUT DRAWING


730(W:2 PIN)
736(W:3 PIN)
737(W:3 PIN)
726
(BK:2 PIN)
721(W:6 PIN)
735(W:6 PIN)
747(W:12 PIN)
748(W:6 PIN)
749(W:6 PIN)
754(W:9 PIN)
755(W:16 PIN)
756(BK:8 PIN)
757(BK:8 PIN)
749(BK:6 PIN)
748
(BK:7 PIN)
747
(BK:12 PIN)
753
(BK:8 PIN)
755
(BK:19 PIN)
723(W:6 PIN)
754(BK:9 PIN)
727(W:6 PIN)
725(W:6 PIN)
724(W:6 PIN)
743(W:3 PIN)
741(W:3 PIN)
740(W:3 PIN)
744(W:3 PIN)
746(W:13 PIN)
742(W:3 PIN)
745(W:13 PIN)
734(W:3 PIN)
733(W:3 PIN)
401(GY:16 PIN)
735(W:3 PIN)
738(W:3 PIN)
722
(W:6 PIN)
721(W:6 PIN)
739(W:3 PIN)
728(W:6 PIN)
750(BK:3 PIN)
728(W:6 PIN)
750(BK:3 PIN)
750(BK:3 PIN)
729(W:6 PIN)
729(W:6 PIN)
704(W:11 PIN)
703(W:10 PIN)
701(W:11 PIN)
702(W:6 PIN)
706
(GY:16 PIN)
705
(GY:20 PIN)
707
(W:12 PIN)
708(GY:26 PIN)
709(GY:34 PIN)

FS-105 OVERALL WIRING DIAGRAM


TRAY UP-DOWN MOTOR
M804
PAPER EXIT MOTOR
M805
TRAY 2 MOTOR
M810
TRAY 3 MOTOR
M811
GATE SWITCH SOLENOID
SD801
SHUTTER SOLENOID
SD802
CONVEYANCE DRUM POSITION DETECT SENSOR
PS801
CONVEYANCE DRUM ENTRANCE DETECT SENSOR
PS802
TRAY 1 PAPER EXIT DETECT SENSOR
PS803
PAPER THROUGH DETECT SENSOR
PS804
TRAY UPPER LIMIT DETECT SENSOR
PS805
TRAY LOWER LIMIT DETECT SENSOR
PS806
TRAY 2 FULL-STACK DETECT SENSOR
PS807
TRAY 3 FULL-STACK DETECT SENSOR
PS809
STAPLER NO PAPER SENSOR
PS812
PAPER EXIT MOTOR HP SENSOR
PS813
STAPLER UNIT HP SENSOR
PS814
ALIGNMENT MOTOR HP (REAR) SENSOR
PS815
ALIGNMENT MOTOR HP (FRONT) SENSOR
PS816
STAPLER (FRONT) MOTOR
STAPLER HP (FRONT) SENSOR
NO STAPLE (FRONT) SENSOR
NO-STAPLE (F) (LEAD EDGE) SENSOR
M803
PS 817
PS 818
PS 819
STAPLER (REAR) MOTOR
STAPLER HP (REAR) SENSOR
NO STAPLE (REAR) SENSOR
NO-STAPLE (R) (LEAD DDGE) SENSOR
M802
PS 820
PS 821
PS 822
FSCB
M801
PAPER FEED MOTOR
M807
CONVEYANCE DRUM DRIVE MOTOR
M808
ALIGNMENT (REAR) MOTOR
M809
ALIGNMENT (FRONT) MOTOR
M806
STAPLER MOVEMENT MOTOR
MS801
INTER LOCK MS
MS802
UP-DOWN (UPPER) MS
MS803
UP-DOWN (LOWER) MS
MS804
STAPLER SAFTY MS
MAIN BODY
SGND
5VDC
PGND
24VDC
FS RXD
FS R REQ
FS R ACK
FS TXD
FS T ACK
FS T REQ

[How to see the diagram]

1. The signals shown reflect levels present under normal idleing conditions with the main switch turned ON.
2. Wiring symbols in the figure are as follows.

(1) [Symbol]

50-1
V
V
Connector
Faston
PGC
Wire (Violet)

(2) [Color code]

BN - Brown   B - Blue
R - Red   V - Violet
O - Orange   GY- Gray
Y - Yellow   W - White
GN - Green   BK- Black
LB - Light blue   P - Pink

Example: (Y/GN) represents green yellow striped pattern.

(3) (RC) is ribbon cable.

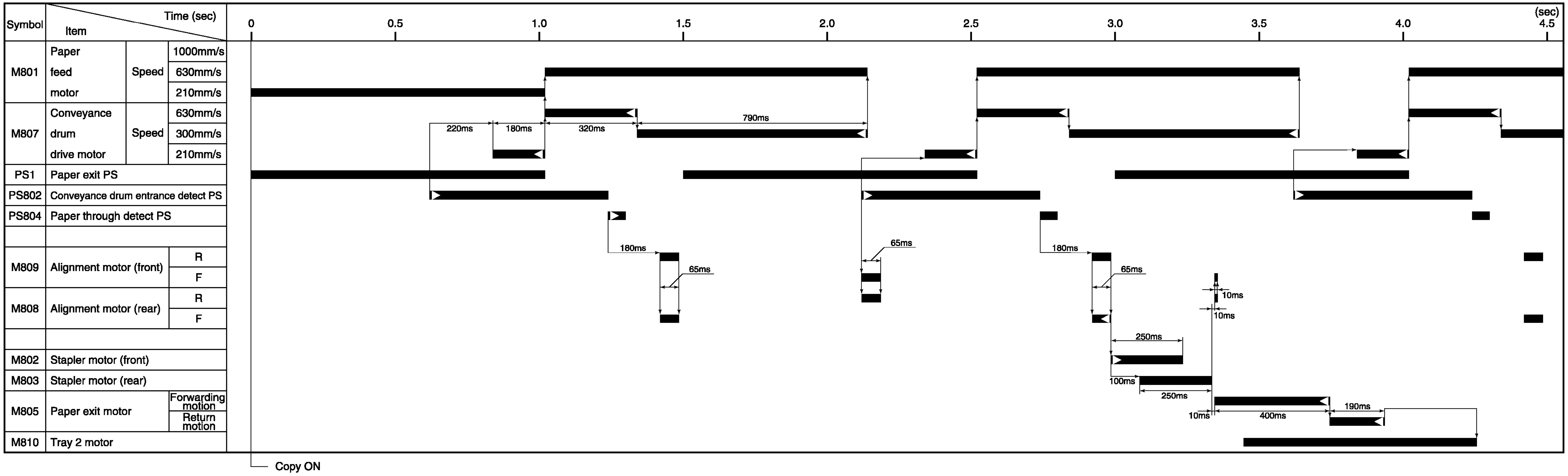
(4) Signal flow

The solid black circle (●) among the connector symbols (○) indicates the direction of signal flow.

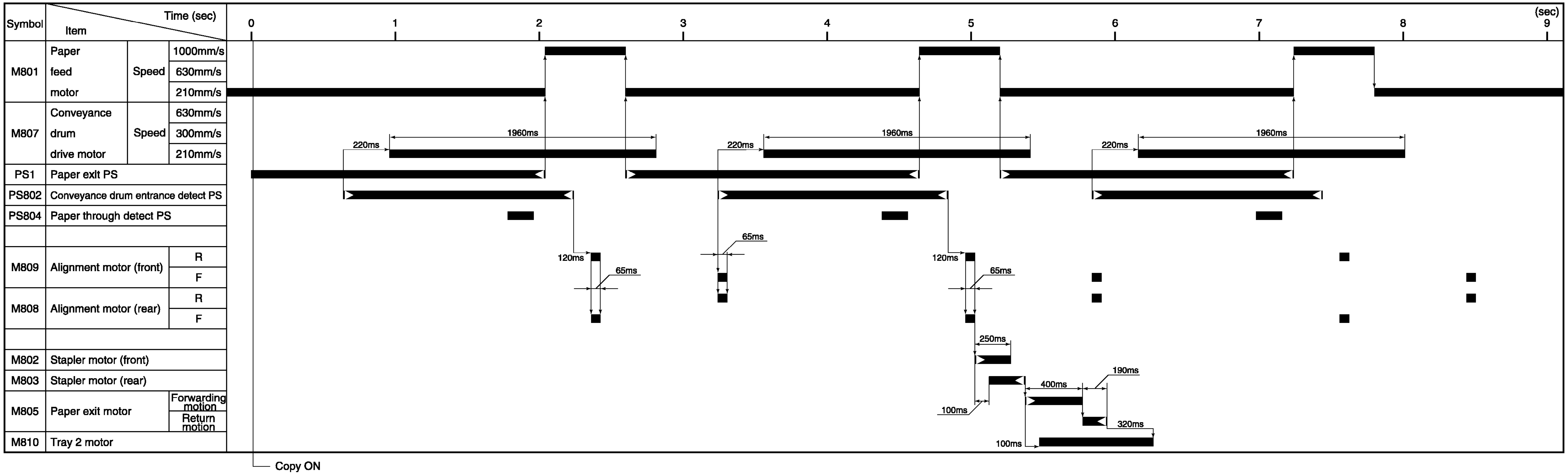
Example)

CB
5VDC
PS1
SGND
Direction of signal flow
PS1

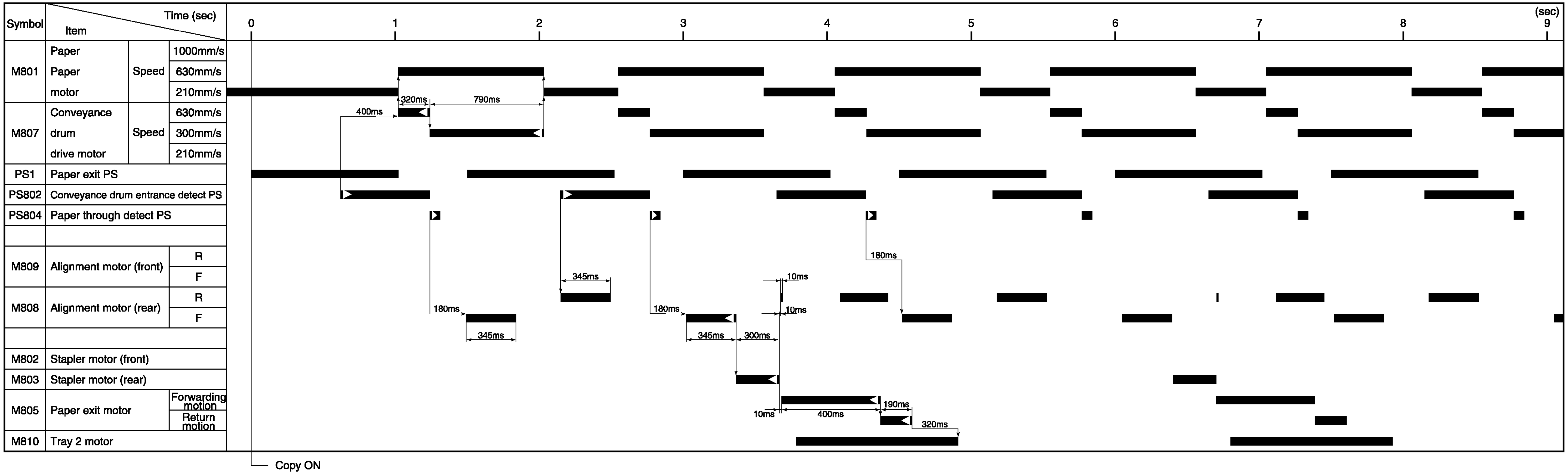
FS-105 TIMING CHART (A4, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS/TWO PLACES STAPLING)


Symbol
Item
Time (sec)
0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
(sec)
4.5
M801
Paper feed motor
Speed
1000mm/s
630mm/s
210mm/s
M807
Conveyance drum drive motor
Speed
630mm/s
300mm/s
210mm/s
PS1
Paper exit PS
PS802
Conveyance drum entrance detect PS
PS804
Paper through detect PS
M809
Alignment motor (front)
R
F
M808
Alignment motor (rear)
R
F
M802
Stapler motor (front)
M803
Stapler motor (rear)
M805
Paper exit motor
Forwarding motion
Return motion
M810
Tray 2 motor
220ms
180ms
320ms
790ms
180ms
65ms
65ms
180ms
65ms
10ms
10ms
250ms
100ms
250ms
10ms
400ms
190ms
Copy ON

FS-105 TIMING CHART (A3, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS/TWO PLACES STAPLING)


Symbol
Item
Time (sec)
0
1
2
3
4
5
6
7
8
(sec)
9
M801
Paper feed motor
Speed
1000mm/s
630mm/s
210mm/s
M807
Conveyance drum drive motor
Speed
630mm/s
300mm/s
210mm/s
PS1
Paper exit PS
PS802
Conveyance drum entrance detect PS
PS804
Paper through detect PS
M809
Alignment motor (front)
R
F
M808
Alignment motor (rear)
R
F
M802
Stapler motor (front)
M803
Stapler motor (rear)
M805
Paper exit motor
Forwarding motion
Return motion
M810
Tray 2 motor
220ms
1960ms
220ms
1960ms
220ms
1960ms
120ms
65ms
65ms
120ms
65ms
250ms
400ms
190ms
100ms
320ms
100ms
Copy ON

FS-105 TIMING CHART (A5R, TRAY 2 (FACE DOWN), SIX SHEETS, EVERY TWO SHEETS/SHIFT STAPLING)



Konica

7033

SERVICE HANDBOOK

SAFETY AND IMPORTANT WARNING ITEMS

.... Refer to the 7040 service handbook on page C-1

1. LIST OF DIFFERENCE

2. MAIN BODY

3. DIAGRAMS

4. SERVICE

Mar. 1999
Ver. 3.0

KONICA CORPORATION
TECHNOLOGY SUPPORT CENTER
TOKYO JAPAN

INTRODUCTION

The Konica 7033 is based on the Konica 7040.
This handbook only lists the major differences and changes between the 7040 and 7033. Regarding items not listed in this service handbook, refer to the service handbook of the Konica 7040, which is the base machine.

1

LIST OF DIFFERENCE

1. LIST OF DIFFERENCE

K-7040/K-7033 LIST OF DIFFERENCE 1-1

K-7040/K-7033 LIST OF DIFFERENCE

Classification	7040	7033	
Functions	1. Continuous copying speed • 35 A4 copies/minute (Superfine mode) • 40 A4 copies/minute (Fine, Normal mode)	1. Continuous copying speed • 33 A4 copies/minute (Superfine mode) • 33 A4 copies/minute (Fine, Normal mode)	• S
Copy materials	1. Developer/Toner/Drum • Exclusively for 7040	1. Developer/Toner/Drum • Developer: Comon with 7040 • Toner: Exclusively for 7033 • Drum: Comon with 7040	• S
Maintenance	1. Maintenance interval • Every 100,000 copies 2. Machine service life • 1,200,000 copies or 5 years	1. Maintenance interval • Every 80,000 copies 2. Machine service life • 1,000,000 copies or 5 years	• S
Control program	1. Main control (CB) • Exclusively for 7040 2. Image processing control (ICB) • Exclusively for 7040	1. Main control (CB) • Exclusively for 7033 2. Image processing control (ICB) • Exclusively for 7033	• S

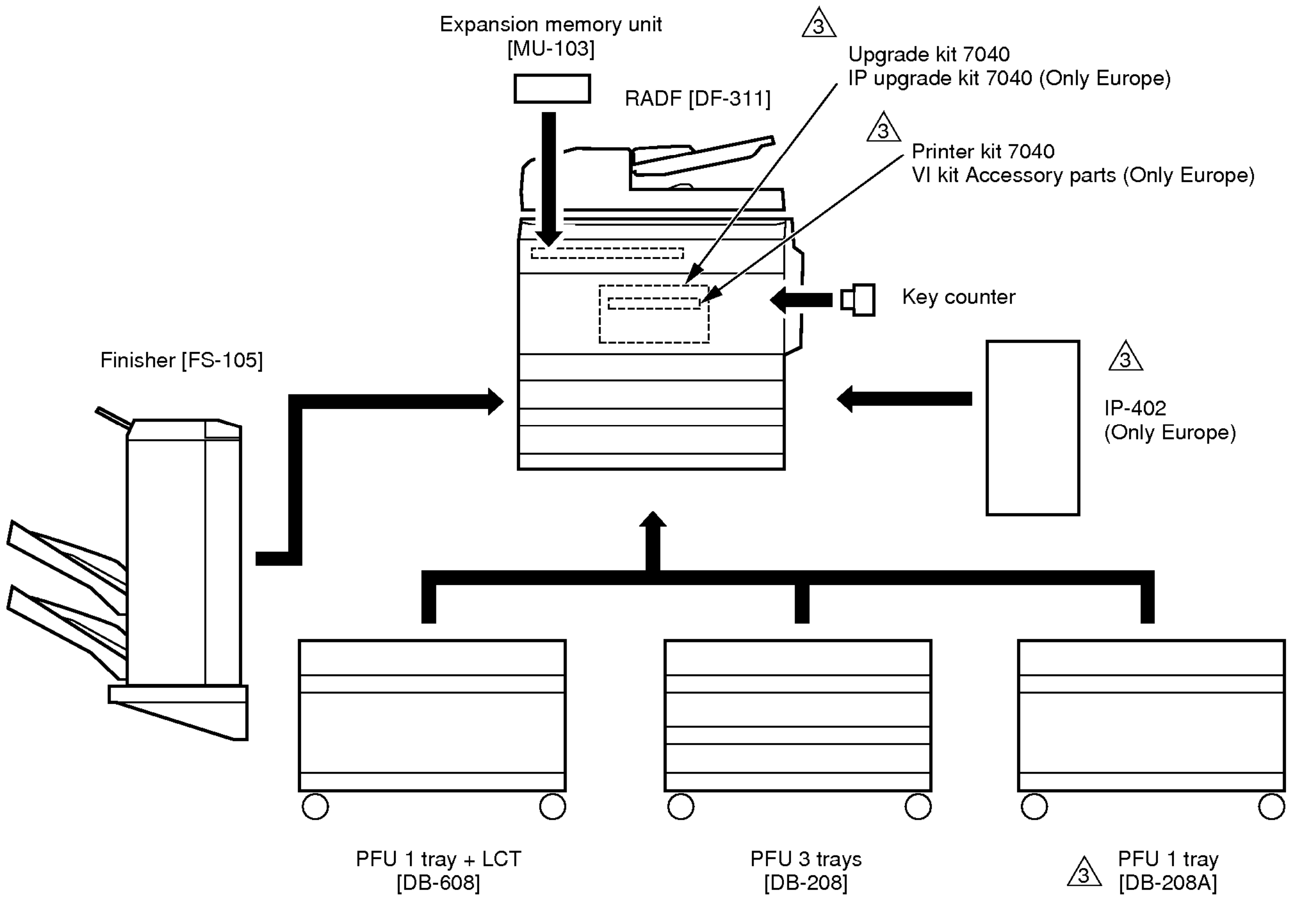
2

MAIN BODY

2. MAIN BODY

SYSTEM OUTLINE 2-1
7033 PRODUCT SPECIFICATIONS 2-2

SYSTEM OUTLINE


Expansion memory unit
[MU-103]
RADF [DF-311]
3
Upgrade kit 7040
IP upgrade kit 7040 (Only Europe)
3
Printer kit 7040
VI kit Accessory parts (Only Europe)
Key counter
Finisher [FS-105]
3
IP-402
(Only Europe)
PFU 1 tray + LCT
[DB-608]
PFU 3 trays
[DB-208]
3
PFU 1 tray
[DB-208A]

7033 PRODUCT SPECIFICATIONS

1. Type

Type: Semi-console type
Copying method: Indirect electrostatic method
Original table method: Fixed
Photosensitive material: OPC
Sensitizing method: Laser writing method
Paper feed method: One stacked tray (500 sheets, 80 g/m^2)
Multi by-pass tray (100 sheets, 80 g/m^2)
LCT (1500 sheets, 80 g/m^2)
PFU (500 sheets, 80 g/m^2 x 1 tray, or 3 trays)

2. Functions

Originals: Sheets, books, solid objects
Original size: Max A3
Copy size: A3 to A5, 8.5 x 11
Magnification
Fixed magnifications: x1.00, x1.15, x1.22, x1.41, x0.86, x0.82, x0.71
Special ratio magnifications: 3 modes
Zoom magnification: x0.25 to 4.00 (1% steps)
Vertical magnification: x0.25 to 4.00 (1% steps)
Horizontal magnification: x0.25 to 4.00 (1% steps) (In the superfine mode, however, the magnification range is x0.50 to x4.00.)
Warm-up time: Approx. 90 seconds (20 °C, rated voltage) ∗1
First copy time (A4, 8.5 x 11): 6 seconds or less
Continuous copy speed (A4, 1:1):

Mode	Copy speed (copies/minute)
Platen (superfine mode)	33
Memory (fine, normal)	33

Number of continuous copies: 1 to 999
Copy density selection: AE, manual, Arbitrarily set density (2 modes)
Special functions: Sheet/Cover Interleave, Chapter, Combination (2-in-1, 4-in-1, 8-in-1), Booklet, Transparency Interleave, Image Insert, Book Copy, Mixed Original, Tex/Photo Enhance (text/photo/pencil), Reverse Image, Repeat, Frame/Fold Erasure, Auto Layout, Thin/Thick Paper, Image Shift, Non-image Area Erase, memory function, density monitor, single step, density shift, printing function, copy reservation, original rotation, weekly timer, job memory

3. Copy Paper

Plain paper High quality paper (60 g/m^2 to 90 g/m^2)
Special paper (By-pass paper feed only)
* Label paper
* OHP film
* Blueprint master
* Recycled paper
* High quality paper (50 g/m^2 to 59 g/m^2, 91 g/m^2 to 130 g/m^2)

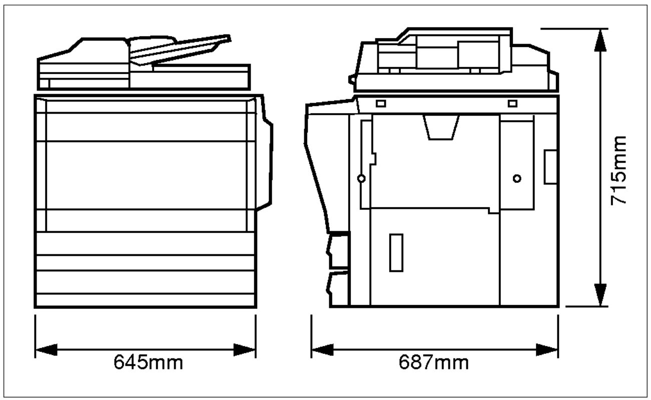
4. Options

Finisher: FS-105
PFU: DB-208 (500 x 3 trays),
△3 DB-208A (500 x 1 tray),
DB-608 (500 x 1 tray +1500 LCT)
Expansion memory unit: MU-103
△3 **Printer:** Printer kit 7040
Upgrade kit 7040
IP-402 + VI kit Accessory parts (Only Europe)
IP Upgrade kit 7040 (Only Europe)
Key counter

5. Particulars of Machine

Power source: 230 VAC -14% to +10.6%, 50 Hz/60 Hz
120 VAC ±10%, 60 Hz
Power consumption: Max 1500 W (when all options are connected)
Weight: Approx. 100 kg

Machine dimensions



∗1: 90 seconds is the machine for the 230 VAC specification.
Warm-up time differs depend on the power source (voltage).

6. Maintenance

Maintenance interval: Every 80,000 copies
Machine service life: 1,000,000 copies or 5 years

7. Copy Materials

Developer: Common with 7040
Toner: Exclusively for 7033
Drum: OPC drum (ϕ60)
Common with 7040

8. Machine Operating Environment

Temperature: 10 to 30°C
Humidity: 10 to 80%RH

These specifications are subject to change without notice.

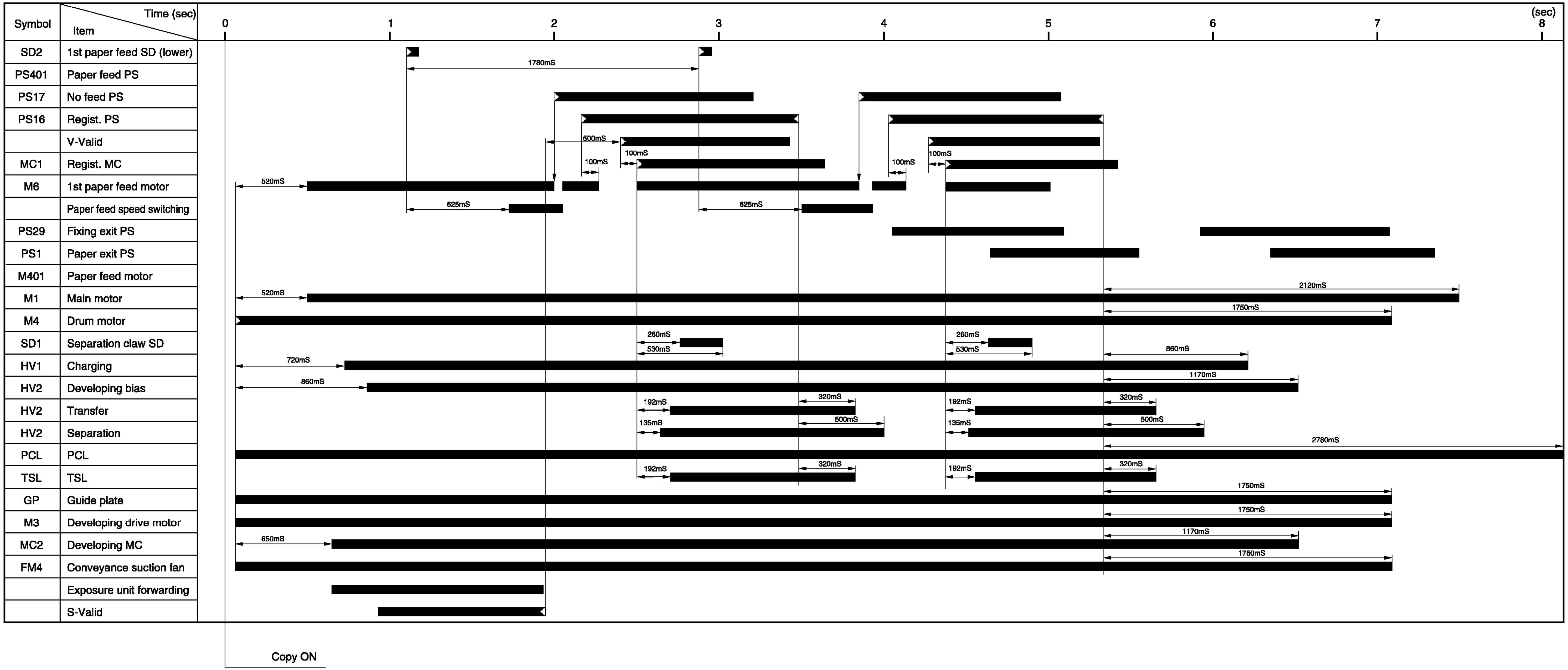
3

DIAGRAMS

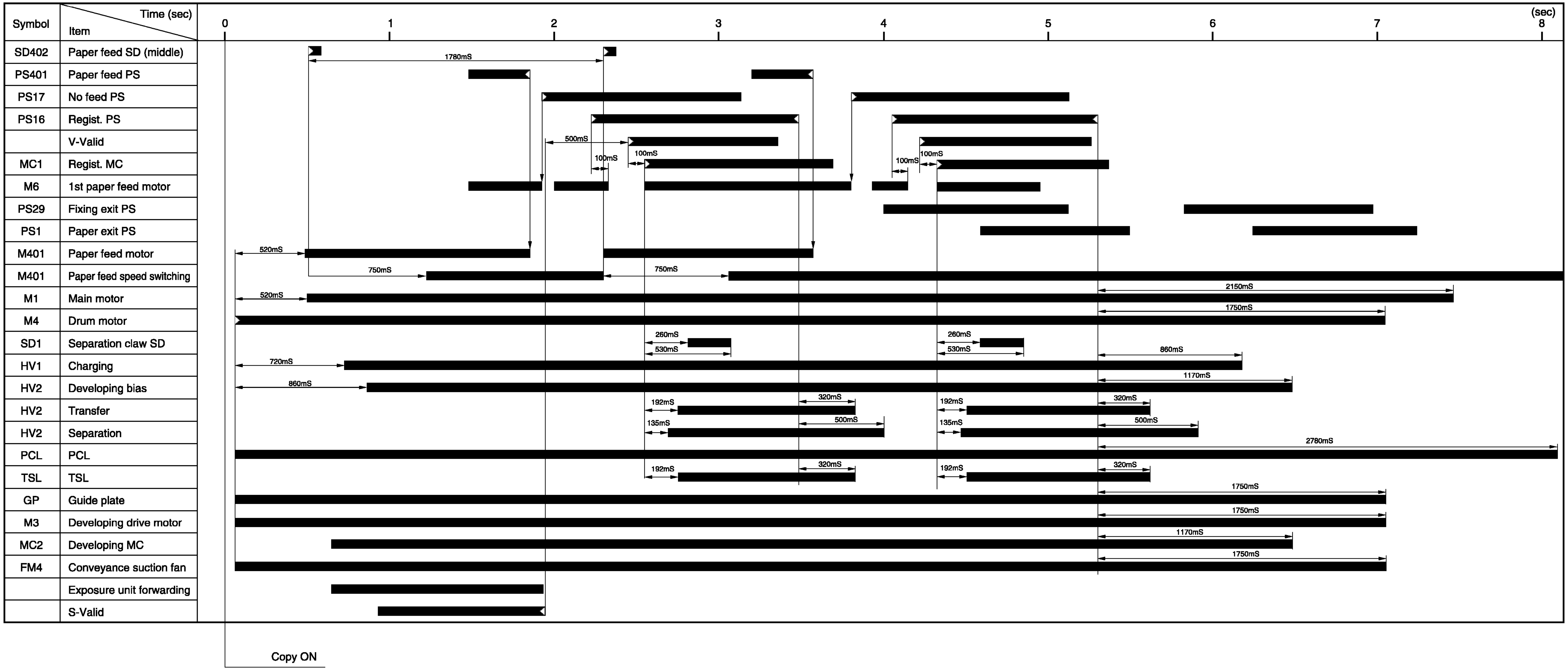
3. DIAGRAMS

7033 TIMING CHART 3-1
FS-105 TIMING CHART 3-4

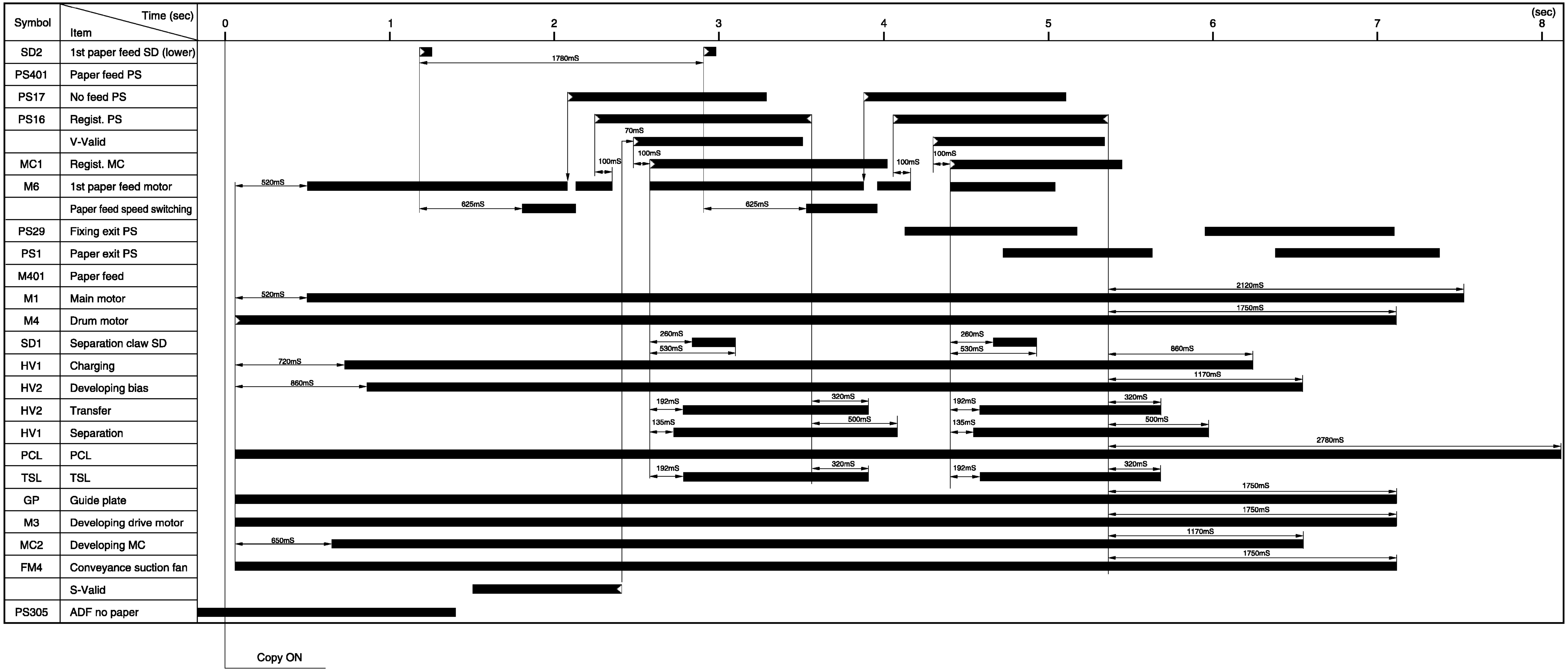
7033 TIMING CHART (A4, LIFE SIZE, TWO COPIES, TRAY PAPER FEED)



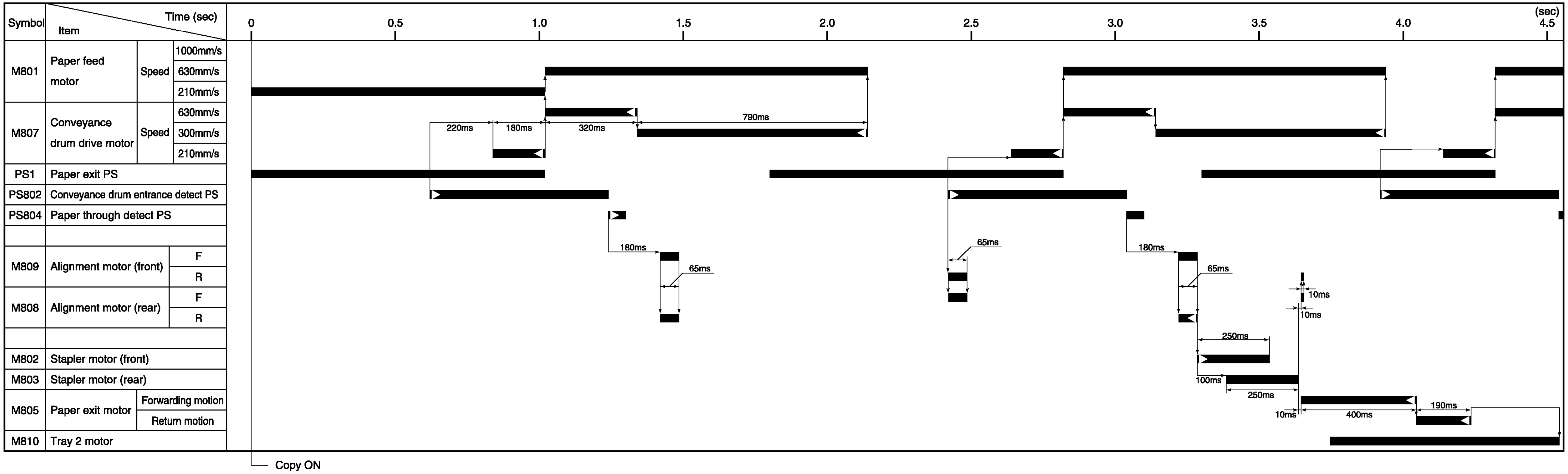
7033 TIMING CHART (A4, LIFE SIZE, TWO COPIES, DB MIDDLE TRAY PAPER FEED)



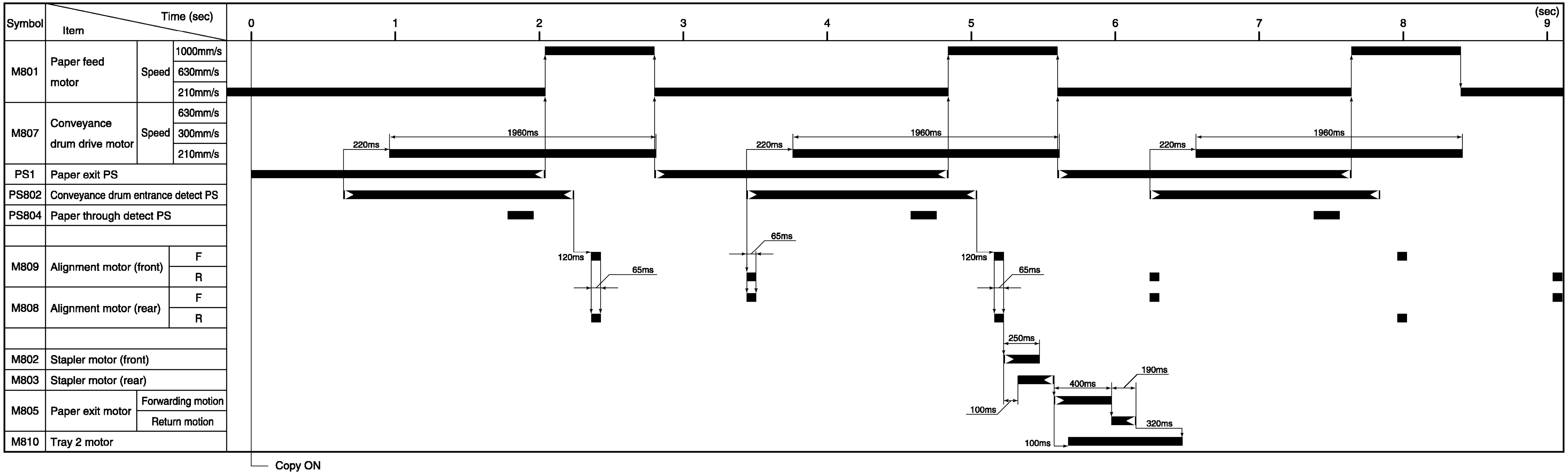
7033 TIMING CHART (ADF ORIGINAL, A4, LIFE SIZE, TWO COPIES, TRAY PAPER FEED)



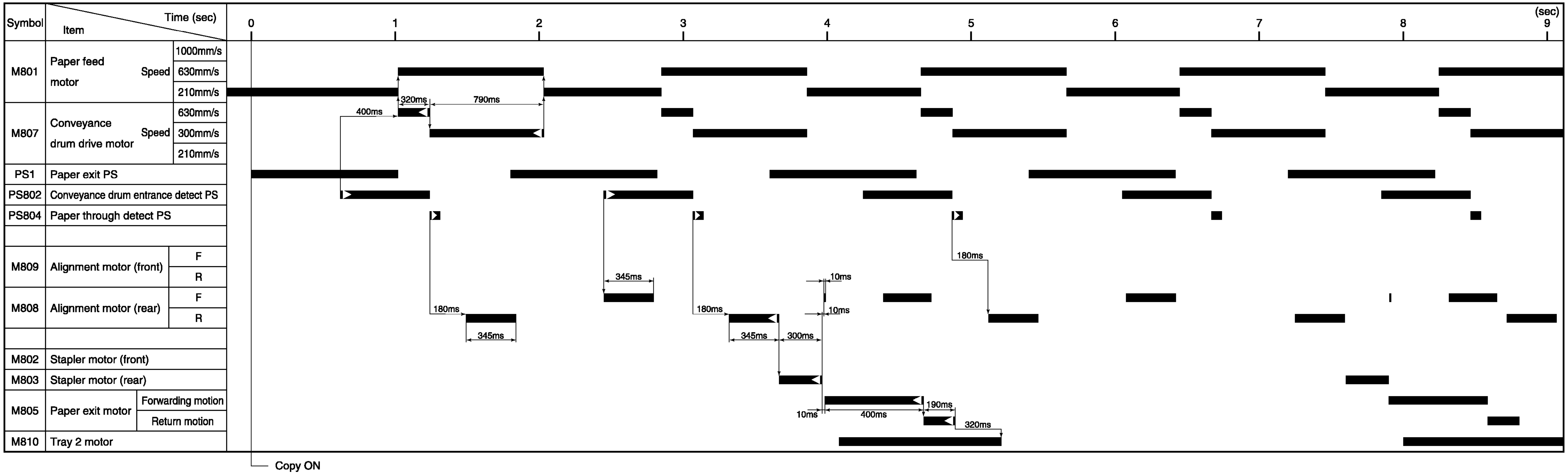
FS-105 TIMING CHART (A4, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS / TWO POSITION STAPLING)



FS-105 TIMING CHART (A3, TRAY 2 (FACE DOWN), THREE SHEETS, EVERY TWO SHEETS / TWO POSITION STAPLING)



FS-105 TIMING CHART (A5R, TRAY 2 (FACE DOWN), SIX SHEETS, EVERY TWO SHEETS/SHIFT STAPLING)



4

SERVICE

4. SERVICE

SERVICE SCHEDULE 4-1
  [1] Service Schedule 4-1
  [2] Maintenance Items 4-2
  [3] Periodic Check (Main Body) 4-6
  [4] RADF [DF-311] Periodic Check 4-7
  [5] DB [DB-608] Periodic Check 4-7
  [6] DB [DB-208] Periodic Check 4-7
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  [8] FNS [FS-105] Periodic Check 4-7
  [9] Actual Count Replacement Parts 4-8
COPY MATERIALS 4-10
  [1] PM Parts Kit Composition 4-10
SERVICE MATERIALS LIST 4-12
SPECIAL TOOLS LIST 4-13

Main Precautions for Maintenance

1. Points to be confirmed before maintenance
   Before starting maintenance, speak to the user and collect information about troubles that have occurred on the machine before the maintenance and the conditions of the machine to grasp key points for the maintenance.

2. Copy sample
   Be sure to make samples at the start and at the end of maintenance for checking images.

3. Drum
   1) Never expose a drum to the sunlight. Also careful not to expose a drum to indoor light as much as possible.
      When a drum unit or a drum is out of the machine, never fail to cover it with a drum cover.
   2) When replacing a drum or a cleaning blade, refer to Item of mounting/dismounting of a cleaning blade for doing a replacement work.

4. After replacing a drum, be sure to reset the drum counter before image adjustment. After replacing developer, L detection adjustment must be conducted.

5. When maintenance is completed, be sure to reset hte PM counter. Incidentally, a development counter is reset automatically in the course of L detection adjustment.

6. When replacing a toner cartridge, wait until a toner supply LED on an operation panel flashes before the replacement.

⚠ **Note: Turn the main power switch off and pull out the power plug without fail before the work of maintenance.**

SERVICE SCHEDULE

[1] Service Schedule

Classification	Number of copies (unit: 10,000) Service item (cycles)	Guarantee period (5 years or 1,000,000 copies)										Service times
		8	16	24	32	40	48		80	88	96	
Main body	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (I) (Every 160,000 copies or prints)		●		●		●	●	●		●	6 times
	Periodic check (II) (Every 400,000 copies or prints)					●			●			2 times
	Periodic check (III) (Every 800,000 copies or prints)								●			1 time
RADF (DF-311)	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (Every 240,000 copies or prints)			●			●	●			●	4 times
DB-608 (1 tray + LCT)	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (Every 160,000 copies or prints)		●		●		●	●	●		●	6 times
DB-208 (3 trays)	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (Every 240,000 copies or prints)			●			●	●			●	4 times
△3 DB-208A (1 tray)	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (Every 240,000 copies or prints)			●			●	●			●	4 times
FNS (FS-105)	Maintenance (Every 80,000 copies or prints)	●	●	●	●	●	●	●	●	●	●	12 times
	Periodic check (Every 240,000 copies or prints)			●			●	●			●	4 times

[2] Maintenance Items

1. Main body (Every 80,000 copies, prints or paper feed)

Remarks: (●) and (◎) indicate the following in the classification of implementation.
(●) indicates items that must always be implemented.
(◎) indicates items for checking whether they have reached the substantial resistance count listed in the fixed replacement part list and judge whether to replace them or not.

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Preparation	(1) Image check		●				
		(2) External parts		●				
		(3) Check of adjustment value, Dmax and γ correction error		●				
2	Fixing unit	(1) Fixing unit removing						
		(2) Upper cover removing						
3	Drum unit	(1) Drum unit removing						
		(2) Drum unit check		●				
		(3) Charging corona unit removing						
		(4) Charging control plate 55GA2507*				◎		
		(5) Charging wire 55FA2501*				◎		
		(6) Charging corona unit cleaning (Back plate and its around, and PCL)	●					Drum cleaner & Waste rag Blower brush
		(7) Cleaner mount assembly 55GA-252*				◎		
		(8) Charging wire cleaning block (C) 55GA-253*				◎		
		(9) Charging wire cleaning block (D) 55GA-255*				◎		
		(10) Developing unit removing						
		(11) Drum removing						
		(12) Drum cartridge/Developing unit bottom plate/Toner control sensor/Separating claw/Developing bias intercept	●					Blower brush & Cleaning pad Drum cleaner (Drum cleaner: only when using the toner control sensor cleaning.)
		(13) Cleaning blade 55GA5601*				◎		
		(14) Drum installing						
		(15) Charging corona unit installing						
4	Developing unit	(1) Developing unit lower rib (inside & outside)/upper rib (back side of the urethane sheet)	●					Waste rag & Blower brush (When cleaning the back side of the urethane sheet, the back side should be cleaned, particularly the urethane sheet section.)
		(2) Developing unit installation						
		(3) Toner supply opening and its around	●					Waste rag
5	Transfer/ Separator corona unit	(1) Transfer/Separating corona unit cleaning (Front and rear block/Guide rail/Separating bridge/Entrance guide plate/Back plate) and include removing and installing	●					Blower brush & Cleaning pad
		(2) Discharging wire 55GA2607*				◎		

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
6	Machine inside	(1) Conveyance unit	●					Drum cleaner & Cleaning pad
		(2) Conveyance guide plate	●					Drum cleaner & Cleaning pad
		(3) Conveyance belt	●					Drum cleaner & Cleaning pad
		(4) Toner filter 55GA7326*				◎		
7	2nd paper feed unit	(1) Transfer entrance guide plate assembly	●					Drum cleaner & Cleaning pad
		(2) Registration guide plate (B) assembly	●					Drum cleaner & Cleaning pad
		(3) Registration unit	●					Drum cleaner & Cleaning pad
		(4) Registration roller (lower)	●					Drum cleaner & Cleaning pad
		(5) Registration roller (upper)	●					Drum cleaner & Cleaning pad
		(6) Registration paper feed roller	●					Drum cleaner & Cleaning pad
		(7) Paper feed pulley	●					Drum cleaner & Cleaning pad
		(8) Paper conveyance roller	●					Drum cleaner & Cleaning pad
		(9) Photo sensors	●					Blower brush
		(10) Paper feed door	●					Drum cleaner & Cleaning pad
8	Drum unit	(1) Drum unit installing						
9	By-pass unit	(1) By-pass tray	●					Drum cleaner & Cleaning pad
		(2) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention plate	●					Drum cleaner & Cleaning pad
		(5) Photo sensor	●					Blower brush
		(6) Photo sensor	●					Blower brush
10	Paper feed unit	(1) Paper feed unit removing						
		(2) Paper feed roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
11	ADU	(1) Registration roller (lower)	●					Drum cleaner & Cleaning pad
		(2) Conveyance roller (A)	●					Drum cleaner & Cleaning pad
		(3) Conveyance roller (B)	●					Drum cleaner & Cleaning pad
		(4) Photo sensor	●					Blower brush
		(5) Photo sensor	●					Blower brush
12	Reversal paper exit section	(1) Paper exit turn back roller	●					Drum cleaner & Cleaning pad
		(2) Turn back roller	●					Drum cleaner & Cleaning pad
		(3) Conveyance roller	●					Drum cleaner & Cleaning pad
		(4) Paper exit roller	●					Drum cleaner & Cleaning pad
		(5) Photo sensors	●					Blower brush
13	Reading section	(1) Original glass	●					Drum cleaner & Cleaning pad
		(2) Lens	●					Blower brush
		(3) 1st mirror	●					Blower brush & Cleaning pad
		(4) 2nd mirror	●					Blower brush & Cleaning pad
		(5) White reference plate cover glass	●					Drum cleaner & Cleaning pad
		(6) Original glass (1)	●					Drum cleaner & Cleaning pad
		(7) Optics drive wire (front)		●				
		(8) Optics drive wire (rear)		●				
		(9) Optics driven sheet			●			Multi oil & Cotton tips
		(10) Optics driven sheet (upper)			●			Multi oil & Cotton tips
		(11) APS sensors	●					Blower brush
		(12) Photo sensors	●					Blower brush
		(13) Lamp power supply relay cord		●				

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
14	Fixing unit	(1) Fixing cleaning roller 55GA5312*				◎		
		(2) Fixing roller (A) 55GA5311*				◎		
		(3) Fixing cleaning pad 55GA5310*				◎		
		(4) Fixing roller (upper)	●					Roller cleaner & Cleaning pad
		(5) Paper exit guide (lower) removing						
		(6) Fixing roller (lower)	●					Roller cleaner & Cleaning pad
		(7) Fixing claw (upper)	●					Roller cleaner & Cleaning pad
		(8) Fixing claw (lower)	●					Roller cleaner & Cleaning pad
		(9) Fixing paper exit roller (lower)	●					Drum cleaner & Cleaning pad
		(10) Paper exit pulley	●					Drum cleaner & Cleaning pad
		(11) Fixing entrance plate (lower)	●					Roller cleaner & Cleaning pad
		(12) Fixing entrance plate (upper)	●					Roller cleaner & Cleaning pad
		(13) Fixing temperature sensor 2	●					Roller cleaner & Cleaning pad
		(14) Paper exit guide (lower) installing						
		(15) Fixing upper cover installing						
		(16) Fixing unit installing						
		(17) Photo sensor	●					Blower brush
15	Final check	(1) Toner cartridge supply		●			●	
		(2) W.U.T measure and check		●				
		(3) Image check after changing consumables (Necessary operation when replacing the 160,000 copy materials).		●				
		(4) Copy sample check		●				
		(5) PM counter reset		●				
		(6) Leakage breaker reset		●				
		(7) Machine surroundings, Externals	●	●				Implementation classification

2. RADF [DF-311] (Every 80,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Machine inside	(1) Registration sensor mirror	●					Blower brush
		(2) Registration sensor	●					Blower brush
		(3) Read sensor reflection element	●					Blower brush
		(4) Read sensor	●					Blower brush
		(5) Switchback sensor mirror	●					Blower brush
		(6) Switchback sensor	●					Blower brush

DB-208: Operational manhours of 1 unit X 3
DB-208A: Operational manhours of 1 unit X 1
DB-608: Operational manhours of 1 unit X 2

△3 3. DB [DB-208/DB-208A/DB-608] (Every 80,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Externals	(1) Externals		●				
2	Paper feed section	(1) Paper feed unit removing						
		(2) Paper feed roller	●					Drum cleaner & Cleaning pad
		(3) Separation roller	●					Drum cleaner & Cleaning pad
		(4) Double feed prevention roller	●					Drum cleaner & Cleaning pad
		(5) Gears			●			Plus guard No. 2
		(6) Paper feed unit installing						
3	Externals	(1) Externals	●	●				Drum cleaner & Cleaning pad

4. FNS [FS-105] (Every 80,000 paper exit)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Clean-ing	Check	Lubri-cation	Replace-ment	Supply	
1	Conveyance section	(1) Conveyance drive roller (A) 120H4210*	●					Drum cleaner & Cleaning pad
		(2) Paper exit drive roller 120H4211*	●					Drum cleaner & Cleaning pad

[3] Periodic Check (Main Body)

1. Periodic check (I) (Every 160,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing claw (upper) 25SA5315*				◎		
		(2) Heat insulating sleeve 45405339*				◎		
		(3) Fixing roller (upper) 55GA5303*				◎		
2	Drum unit	(1) Drum				◎		Setting powder
		(2) Separation claw 55GA-206*				◎		
		(3) Drum counter reset		●				
3	Developing unit	(1) Developer (include the developing unit installing)				◎		
		(2) L detection adjustment		●				
4	Paper feed unit	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

2. Periodic check (II) (Every 400,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	By-pass (paper feed section)	(1) Double feed prevention roller 54004056*				◎		
		(2) Separation roller 54004056*				◎		
		(3) Paper feed roller 25BA4032*				◎		
2	Fixing unit	(1) Fixing claw (lower) 54005310*				◎		
		(2) Fixing roller (lower) 55GA5304*				◎		
		(3) Fixing bearing (upper) 55GA7502*				◎		
		(4) Bearing 55GA7503*				◎		
		(5) Fixing bearing 55GA7504*				◎		

3. Periodic check (III) (Every 800,000 copies, prints or paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Fixing unit	(1) Fixing heater lamp 1 55GA8302*				◎		
		(2) Fixing heater lamp 2 55GA8303*				◎		

[4] RADF [DF-311] Periodic Check

1. Periodic check (I) (Every 240,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section	(1) Paper feed roller 120A4582*				◎		
		(2) Forwarding roller 120A4582*				◎		
		(3) Separation pad 120A-458*				◎		

[5] DB [DB-608] Periodic Check

1. Periodic check (I) (Every 160,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section (two units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

[6] DB [DB-208] Periodic Check

1. Periodic check (I) (Every 240,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section (three units)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

△3 [7] DB [DB-208A] Periodic Check

1. Periodic check (I) (Every 240,000 paper feed)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper feed section (one unit)	(1) Separation roller 54004056*				◎		
		(2) Paper feed roller 25BA4032*				◎		
		(3) Double feed prevention roller 54004056*				◎		

△3 [8] FNS [FS-105] Periodic Check

1. Periodic check (I) (Every 240,000 paper exit)

No.	Classification	Service item	Implementation classification					Material used Tools used
			Cleaning	Check	Lubrication	Replacement	Supply	
1	Paper exit section	(1) Paper exit roller (A) (Tray 2) 122H4825*				◎		
		(2) Paper exit roller (A) (Tray 3) 122H4825*				◎		

△3 [9] Actual Count Replacement Parts

Classification	Parts name	Part number	Actual count
Drum cartridge (include charging corona unit)	Cleaning blade	55GA5601*	100,000
	Charging wire	55FA2501*	100,000
	Charging control plate	55GA2507*	100,000
	Cleaner mount assembly	55GA-252*	100,000
	Charging wire cleaning block (C)	55GA-253*	100,000
	Charging wire cleaning block (D)	55GA-255*	100,000
	Transfer/Separation charging wire	55GA2607*	100,000
	OPC drum	–	160,000
	Separation claw	55GA-206*	200,000
Developing unit	Developer	–	160,000
Paper feed unit	(Tray: 1) Separation rubber	54004056*	100,000
	(Tray: 1) Paper feed rubber	25BA4032*	100,000
	(Tray: 1) Double feed prevention rubber	54004056*	100,000
	(Tray: 2) Separation rubber	54004056*	100,000
	(Tray: 2) Paper feed rubber	25BA4032*	100,000
	(Tray: 2) Double feed prevention rubber	54004056*	100,000
	(Tray: 3) Separation rubber	54004056*	100,000
	(Tray: 3) Paper feed rubber	25BA4032*	100,000
	(Tray: 3) Double feed prevention rubber	54004056*	100,000
	(Tray: 4) Separation rubber	54004056*	100,000
	(Tray: 4) Paper feed rubber	25BA4032*	100,000
	(Tray: 4) Double feed prevention rubber	54004056*	100,000
By-pass paper feed unit	(By-pass) Separation rubber	54004056*	100,000
	(By-pass) Paper feed rubber	25BA4032*	100,000
	(By-pass) Double feed prevention rubber	54004056*	100,000
Fixing unit	Fixing cleaning roller	55GA5312*	100,000
	Fixing roller (A)	55GA5311*	100,000
	Fixing cleaning pad	55GA5350*	100,000
	Fixing roller (upper)	55GA5303*	200,000
	Fixing claw (upper)	25SA5315*	200,000
	Heat insulating sleeve	45405339*	200,000
	Fixing roller (lower)	55GA5304*	400,000
	Fixing claw (lower)	54005310*	400,000
	Fixing bearing (upper)	55GA7502*	400,000
	Bearing	55GA7503*	400,000
	Fixing bearing	55GA7504*	400,000
	Fixing heater lamp 1	55GA8302*	800,000
	Fixing heater lamp 2	55GA8303*	800,000

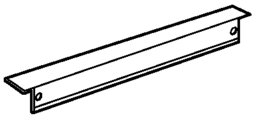
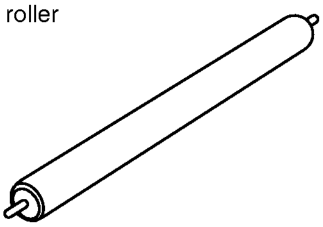
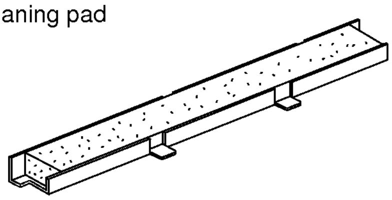
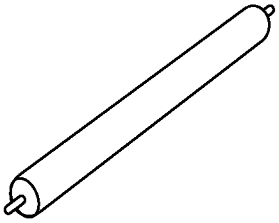
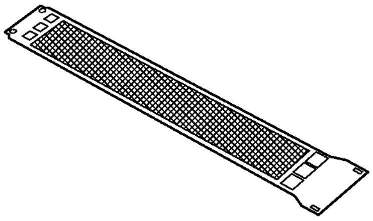
Classification	Parts name	Part number	Actual count
Machine inside	Toner filter	55GA7326*	100,000
DF-311	Paper feed roller	120A4582*	90,000
	Separation roller	120A4582*	90,000
	Separation pad	120A-458*	90,000
FS-105	(Tray 2) Paper exit roller (A)	122H4825*	200,000
	(Tray 3) Paper exit roller (A)	122H4825*	200,000
	* Staple unit (front)	120H5040*	500,000
	* Staple unit (rear)	120H5040*	500,000

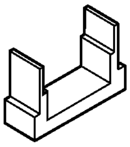
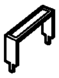
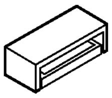
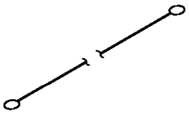
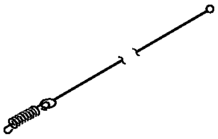
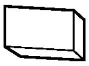
* Regarding usage frequency, 1 staple of the 3-sheets sort is the condition for assuming a main body count 1.5 million resistance when using the system.

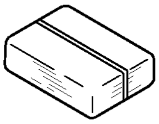
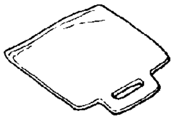
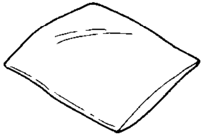
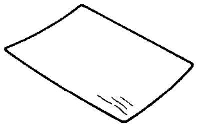
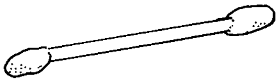
COPY MATERIALS

[1] PM Parts Kit Composition

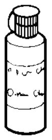
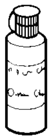
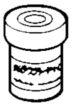
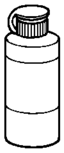
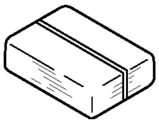
1. Composition (80,000 copies/kit)

Name	Quantity
Cleaning blade 	1
Fixing cleaning roller 	1
Fixing cleaning pad 	1
Fixing roller (A) 	1
Charging control plate 	1

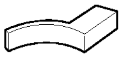
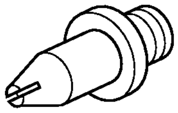
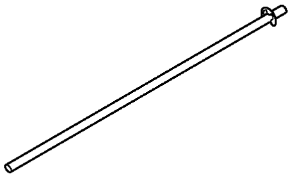
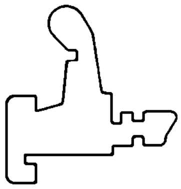
Name	Quantity
Cleaner mount assembly 	1
Charging wire cleaning block (C) 	1
Charging wire cleaning block (D) 	1
Charging corona wire 	1
Charging wire (Transfer/Separation corona) 	2
Toner filter 	1

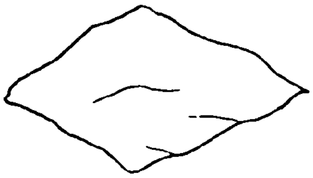
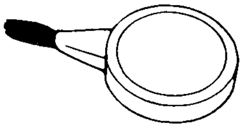
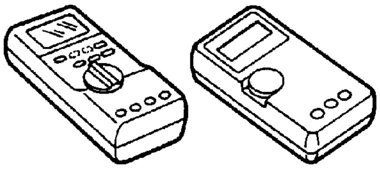
Name	Quantity
Cleaning pad (10 sheets) 	3
Vanity bag for collection 	1 set
Dust bag (rubber band) 	1
Developer collecting sheet (rubber band) 	1
Cotton tips (4 pcs.) 	1

SERVICE MATERIALS LIST

Material No.	Description	Shape	Remark
000V-16-0	Drum cleaner	 200 ml	
000V-17-0	Roller cleaner	 200 ml	
00GR00020	Plus guard No. 2	 25 g	
00GR00170	Multi-oil	 200 ml	
000V-19-0	Setting powder	 25 g	
000V-18-1	Cleaning pad	 10 pcs 1 pack	

△3 SPECIAL TOOLS LIST

Tool No.	Description	Shape	Quantity	Remark
55GAJG010	Temperature sensor position adjusting jig (for fixing)		1	
120A10520	RADF position adjusting jig (for DF-311)		1 set	2 pieces/set
7050K0020	Optics position adjusting jig		2	
00M6-2-00	Door switch jig		1	
00VD-5000	New pyramid chart		1	
120A97110	ADF adjusting chart		1	

Tool No.	Description	Shape	Quantity	Remark
120A97120	White chart		1	
00VC-2-00	Drum cover		1	
00VD-1000	Blower brush		1	
00VE-1002 or 00VE-1003	Tester	 (00VE-1002) (00VE-1003)	1	

* The 55GA2025* drum support tool is screwed to the inside of the main body (front panel/left).

Application: Makes it possible to rotate the drum with the drum cartridge removed from the main body.

7040 PRINTER CONTROLLER SERVICE GUIDE

A guide for service technicians

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FCC Information

WARNING: FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Industry Canada Class B Notice

This Class B digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Avis de Conformation Classe B de l'Industrie Canada

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

RFI Compliance Notice

This equipment has been tested concerning compliance with the relevant RFI protection requirements both individually and on system level (to simulate normal operation conditions). However, it is possible that these RFI Requirements are not met under certain unfavorable conditions in other installations. It is the user who is responsible for compliance of his particular installation.

Dieses Geraet wurde einzeln sowohl als auch in einer Anlage, die einen normalen Anwendungsfall nachbildet, auf die Einhaltung der Funk-entstoerbestimmungen geprueft. Es ist jedoch moeglich, dass die Funk-enstoerbestimmungen unter unguenstigen Umstaenden bei anderen Geraetekombinationen nicht eingehalten werden. Fuer die Einhaltung der Funk-entstoerbestimmungen seigner gesamten Anlage, in der dieses Geraet betrieben wird, ist der Betreiber verantwortlich.

Compliance with applicable regulations depends on the use of shielded cables. It is the user who is responsible for procuring the appropriate cables.

Einhaltung mit betreffenden Bestimmungen kommt darauf an, dass geschirmte Ausfuhrungen gebraucht werden. Fuer die beschaffung richtiger Ausfuhrungen ist der Betreiber verantwortlich.

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Preface

The *Service Guide* is intended for certified 7040 Printer Controller and copier service technicians servicing a 7040 Printer Controller. If you have not received service certification, you should not attempt to service a 7040 Printer Controller. Electronics for Imaging, Inc. does not warrant the performance of the 7040 Printer Controller if serviced by non-certified personnel.

About this guide

This guide is divided into the following sections:

- "Preface"

  Gives general information about this guide and general information that you should know before you attempt to service the 7040 Printer Controller.

- Chapter 1, "Introduction"

  Provides general information about the 7040 Printer Controller.

- Chapter 2, "Operation Panel"

  Tells you how to use the Operation Panel for 7040 Printer Controller functions.

- Chapter 3, "Service Procedures"

  Describes removal and replacement procedures for 7040 Printer Controller board components.

- Chapter 4, "Troubleshooting Procedures"

  Identifies the source of common problems and suggests ways of correcting them.

Customers should not use the technical service documentation. Do not leave this guide behind after you make a service call.

About the illustrations in this guide

Illustrations in this guide reflect the 7040 Printer Controller at the time of publication. Components shown in these illustrations are subject to change. To receive information about any components that do not match illustrations in this guide, contact your authorized service/support center.

Terminology and conventions

The term "network administrator" refers to the person responsible for maintaining the network at the customer site.

The term "Operation Panel" describes the area on the front of the copier that includes LEDs, a display window, and several control buttons and keys.

The term "button" refers to a physical button on the Operation Panel and the term "key" refers to a graphical button on the LCD touch panel.

The term "PC" refers to any IBM PC or compatible computer running Windows over MS-DOS.

The term "100BaseT" refers to 100BaseTX.

The term "7040 Printer Controller" refers to the functional module that supports network printing and associated features for the copier.

The term "HDD" refers to the hard disk drive that is part of the 7040 Printer Controller assembly.

NOTE: The note indicator highlights important messages and additional information.

⚠ The caution icon indicates a need for special care and safety when handling the equipment.

Precautions

Always observe the following general precautions when servicing the 7040 Printer Controller assembly:

1. **Report any shipping damage.**

   If there is any evidence of shipping or handling damage to packing boxes or their contents, save the damaged boxes and parts, call the shipper immediately to file a claim, and notify your authorized service/support center.

2. **Never alter an existing network without permission.**

   The 7040 Printer Controller is probably connected to an existing Local Area Network (LAN) based on Ethernet hardware. The network is the link between the customer's computer, existing laser printers, and other prepress equipment. Never disturb the LAN by breaking or making a network connection, altering termination, installing or removing networking hardware or software, or shutting down networked devices without the knowledge and express permission of the network administrator.

3. **Never enter an IP address in Network Setup.**

   Only the network administrator should enter an IP address on a network device. Assigning an incorrect IP address to the 7040 Printer Controller can cause unpredictable errors on any or all devices.

4. **Follow standard ESD (electrostatic discharge) precautions while working on the internal components of the copier.**

   Static is always a concern when servicing electronic devices. It is highly unlikely that the area around the copier is static-free. Carpeting, leather-soled shoes, synthetic clothing fibers, silks, and plastics may generate a static charge of more than 10,000 volts. Static discharge is capable of destroying the circuits etched in silicon microchips, or dramatically shortening their life span. By observing standard precautions, you may avoid extra service calls and save the cost of a new board.

   When possible, work on a ground-connected antistatic mat. Wear an antistatic wristband, grounded at the same place as the antistatic mat. If that is not possible:

   - Attach a grounding strap to your wrist. Attach the other end to a good ground.
   - When you remove an electronic component, place it into an antistatic bag immediately. Do not walk across a carpet or vinyl floor while carrying an unprotected board.
   - Leave new electronic components inside their antistatic bags until you are ready to install them.
   - When you unpack the electronic components, touch a metal area of the copier to discharge the static on your body. Place the components on a grounded antistatic surface, component-side up.

5. **Avoid flexing a printed circuit board and handle it by opposing edges (not corners) only.**

6. **Never set a cup of coffee—or any liquid—on or near any components or the print device.**

Tools you will need

To service the 7040 Printer Controller, you should bring the following:

- ESD wrist grounding strap
- Antistatic mat
- #0 and #1 Phillips head screwdrivers (non-magnetic)
- Hex nut driver
- Small needlenose pliers
- Flashlight
- This guide and any technical notes you may have for the 7040 Printer Controller

Chapter 1: Introduction

The 7040 Printer Controller embedded in a Konica 7040 copier provides the copier with computer connectivity and highly efficient black and white printing capability. Users can print from networked PCs running Microsoft Windows 3.1x, Windows NT, or Windows 95 and from networked Mac OS computers. In addition, the 7040 Printer Controller parallel port can be used for printing directly from a PC.

Features

As an integral part of the printing system, the 7040 Printer Controller enables users to:

- Send images over TCP/IP, Novell, and AppleTalk networks, or through the parallel port for printing.
- Spool print jobs and select a printing priority for each job. Users can control spooled print jobs sent to the 7040 Printer Controller with remote user software running on networked PCs and Mac OS computers.
- Print PCL, PostScript, and EPS files.
- Use 46 resident PCL fonts and download additional fonts as needed.
- Use 136 resident Postscript fonts (117 Adobe Type 1 PostScript and 19 TrueType). The Fiery Downloader or any third-party LaserWriter downloader, such as the Adobe Font Downloader, can be used to download additional fonts.
- Use built-in NetWise™ network features.

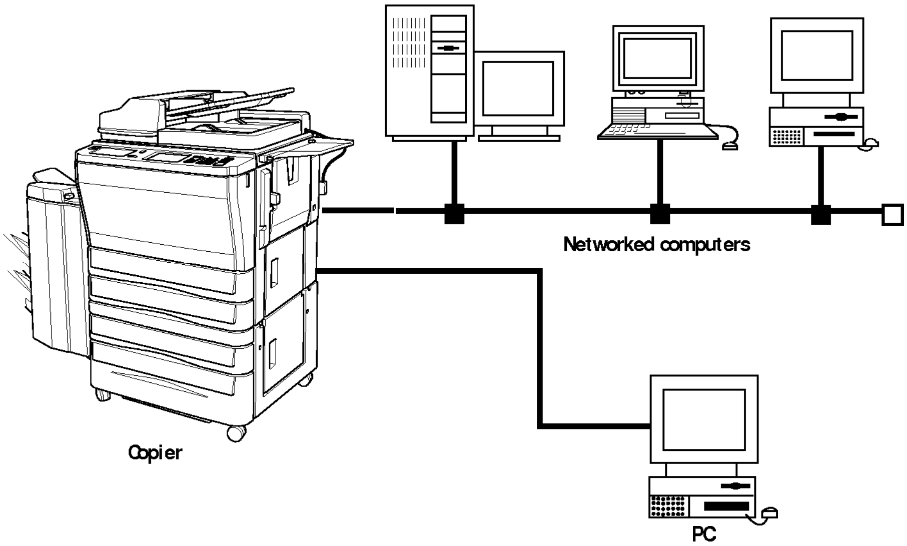


FIGURE 1-1 7040 Printer Controller printing system

How the 7040 Printer Controller operates

The 7040 Printer Controller provides efficient image processing and printing control. The 7040 Printer Controller includes a MIPS R4700RISC (Reduced Instruction Set Computer) CPU with a built-in floating point accelerator that runs the PCL and PostScript Interpreter. Both interpret the page description file to produce the image pattern in memory. The RipChips™ on the board control data management and other system functions, freeing up the CPU for efficient image data processing.

Image data is sent from the 7040 Printer Controller to the copier. Raster data is supplied to the laser in the copier at full copier rated speeds in order to charge the drum and render the final image on paper.

High-speed DIMMs (dual in-line memory modules) on the 7040 Printer Controller hold image data during printing. DIMM configurations include 32MB (one DIMM) and 64MB (two DIMMs).

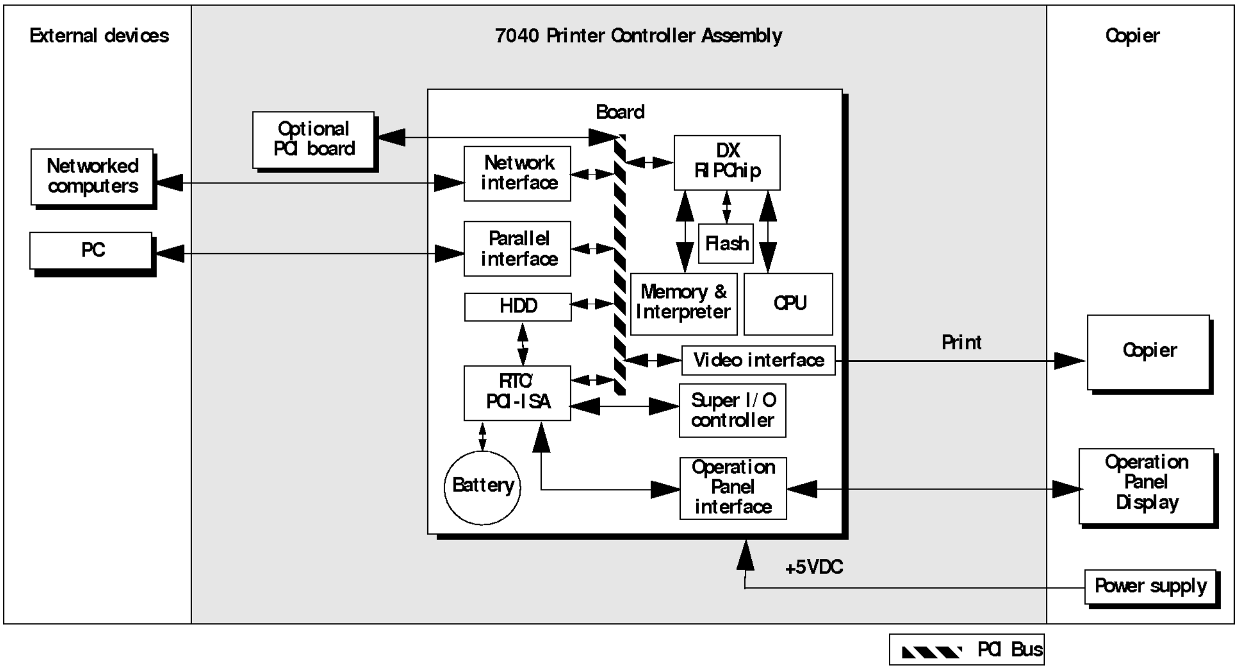

External devices
7040 Printer Controller Assembly
Copier
Networked computers
PC
Optional PCI board
Board
Network interface
Parallel interface
HDD
RTC/ PCI-ISA
Battery
DX RIPChip
Flash
Memory & Interpreter
CPU
Video interface
Super I/O controller
Operation Panel interface
Print
Copier
Operation Panel Display
+5VDC
Power supply
PCI Bus

FIGURE 1-2 7040 Printer Controller functional diagram

7040 Printer Controller print options

The 7040 Printer Controller's efficient PCL and PostScript capabilities allow customers to use a variety of applications to create printed black and white pages of text and/or images. The 7040 Printer Controller operates both over a network and directly over the parallel port. Since the 7040 Printer Controller has the ability to print an image while processing the next image (RIP-While-Print™), it is capable of printing documents at full copier speeds.

Users can print documents directly from the applications in which they were created. In addition, the 7040 Printer Controller offers an efficient way to print files that have been saved in PostScript or EPS (Encapsulated PostScript). These files can be downloaded directly to the 7040 Printer Controller using the Fiery Downloader™, a remote utility provided with 7040 Printer Controller.

Through the parallel port, customers can print documents directly from applications running on a stand-alone or networked PC. PostScript files can also be printed to the parallel port from Windows, including the MS-DOS window, without requiring the application in which the files were created.

User software

User software is provided on the User Software CD. The network administrator or the user at the customer site is responsible for installing user software onto computers that will use the 7040 Printer Controller over the network.

NOTE: In order to take full advantage of the 7040 Printer Controller inside the copier, the user software must be installed on networked computers that will print to it.

The User Software CD includes:

PCL Printer Driver	Enables you to print from Windows computers; also supports all special features and allows the 7040 Printer Controller to appear in popular applications' Print and Page Setup dialog boxes. Includes 46 built-in PCL fonts. See the *User Guide* for a complete list.
Adobe PS Printer Driver	Enables the customer to print Postscript files from Windows and Mac OS computers; also supports all special print features and PostScript 3 features.
PostScript Printer Description file (PPD)	This file is for use with the PS printer driver and allows the 7040 Printer Controller to appear in popular applications' Print and Page Setup dialog boxes. The PPD file provides information about the 7040 Printer Controller and the particular copier model to the application and printer driver used to print.
PostScript Screen Fonts (Mac OS computers with PostScript option only)	Screen fonts for the 136 PostScript printer fonts installed (117 Adobe Type 1 and 19 TrueType). See the *User Guide* for a complete list.
Fiery Downloader™ (Windows 95, Windows NT, and MAC OS)	Enables the customer to print PostScript, and Encapsulated PostScript (EPS) files directly to the 7040 Printer Controller without using the application in which they were created. Fiery Downloader also enables the customer to manage the printer fonts installed on the 7040 Printer Controller.
Fiery Spooler™ (Mac OS only)	Enables the customer to view the order and priority of print jobs, customize printer settings for jobs, delete jobs, and move jobs between queues. The customer can also use it to view job accounting information.

Fiery WebTools

The 7040 Printer Controller can support Internet or intranet access with Fiery WebTools, which include:

- Status
- Installer
- WebSpooler
- WebLink

For more information on WebTools, see the *User Guide*.

2

Using the Operation Panel

Chapter 2: Operation Panel

This chapter describes the functions of the copier Operation Panel that pertain to servicing the 7040 Printer Controller hardware. For a complete description of 7040 Printer Controller Operation Panel functions, see the *User Guide*.

Using the Operation Panel

After the 7040 Printer Controller is installed in the copier, you can use the Operation Panel to verify that the system is working properly.

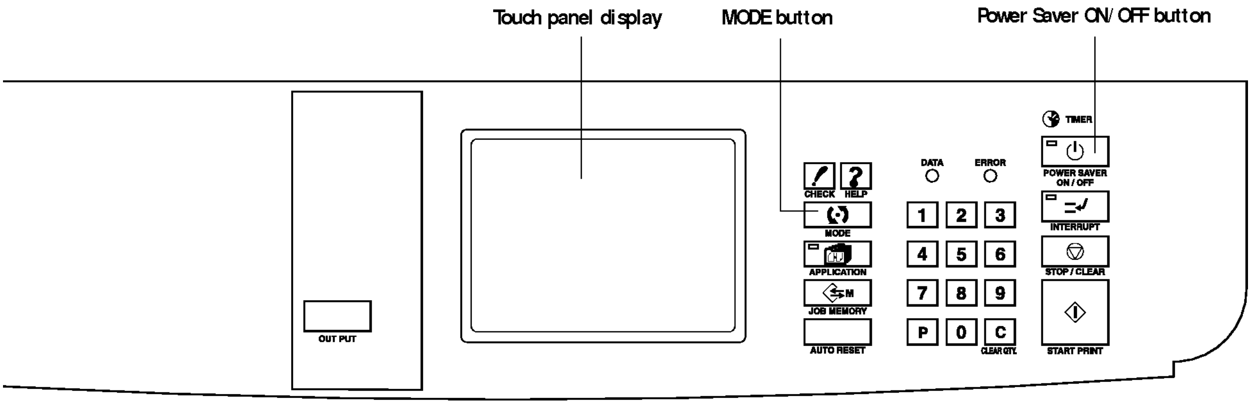

Touch panel display
MODE button
Power Saver ON/OFF button
OUT PUT
TIMER
DATA
ERROR
CHECK
HELP
MODE
APPLICATION
JOB MEMORY
AUTO RESET
1
2
3
4
5
6
7
8
9
P
0
C
CLEAR QTY.
POWER SAVER ON / OFF
INTERRUPT
STOP / CLEAR
START PRINT

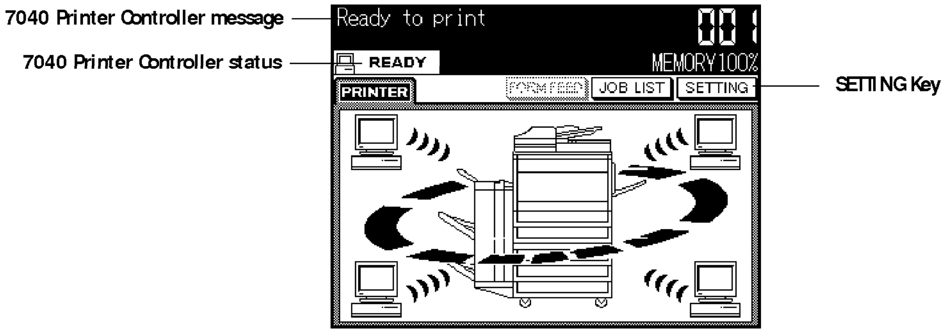
FIGURE 2-1 Operation Panel

NOTE: After a few minutes of no activity, the copier may enter Power Save Mode, therefore, occasionally, you may have to press the Power Saver ON/OFF button to relight the display and press the Mode button to return to Printer mode. Power Save Mode can be disabled or the time out value can be changed (see the Konica 7040 *Service Handbook*).

Accessing Printer mode

Press the Mode button on the Operation Panel to toggle to and from the Printer mode screen. Press the SETTING key on the Printer mode screen to access status and control functions of the 7040 Printer Controller.

NOTE: When the system reboots, pressing the SETTING key when it first becomes available (not grayed out) displays the Start Up screen so you can configure Setup options, format the drive before installing system software, and perform other tasks.



Ready to print

READY

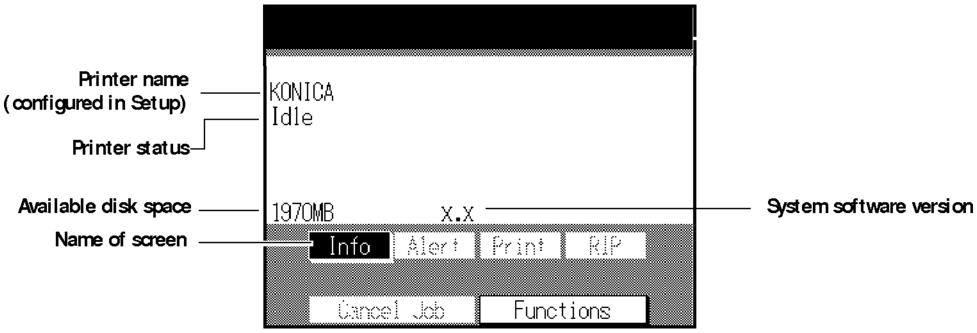
MEMORY 100%

7040 Printer Controller message
7040 Printer Controller status
SETTING Key
PRINTER
FORM FEED
JOB LIST
SETTING

FIGURE 2-2 Printer mode screen

Info screen

At Ready to Print, pressing the SETTING key displays the Info screen. The Info screen allows you to monitor print activity and control 7040 Printer Controller functions such as printing a Test Page.



KONICA

Idle

1970MB X.X

Printer name
(configured in Setup)
Printer status
Available disk space
Name of screen
System software version
Info
Alert
Print
RIP
Cancel Job
Functions

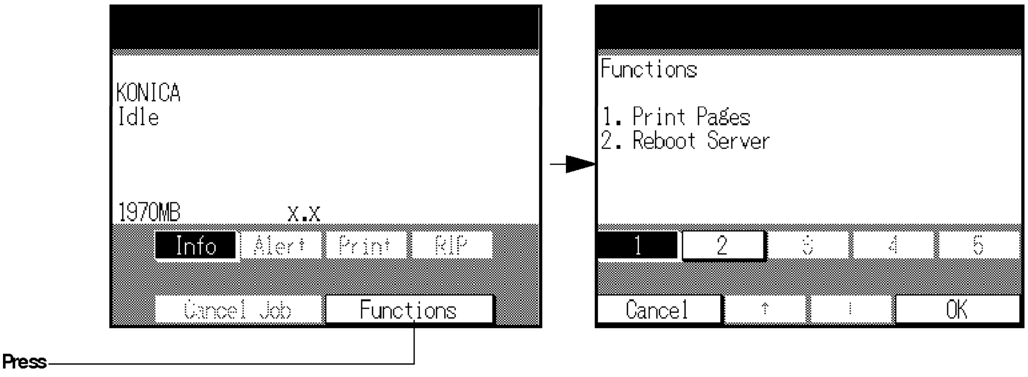
FIGURE 2-3 7040 Printer Controller Info screen

The Info screen displays the following keys:

- Info— Displays the current system software version, the amount of disk space available on the hard disk drive, the printer name on the network, and the current 7040 Printer Controller status (for example, Idle).
- Print— Displays information about the job currently being printed.
- RIP— Displays information about the job that is currently being processed.
- Alert— Displays error messages, if any. For information on error messages that may appear in the Alert screen, see the *User Guide*.
- Cancel job— Cancels the job that is currently being processed.
- Functions— Gives you access to administrative functions not normally performed from a remote computer.

Functions menu

The Functions menu allows you to perform a variety of tasks that do not affect the print jobs of other users. To access the Functions menu, press the Mode button to display the Printer mode screen. When the 7040 Printer Controller has completed its startup process, press the SETTING key to display the Info screen, and then press Functions.



KONICA
Idle

1970MB X.X

Press

FIGURE 2-4 Info screen and Functions menu

Select the number that corresponds to the function you wish to activate and then press OK.

The following functions are available:

Print Pages—Select to print special pages from the 7040 Printer Controller. You can print the following pages from the submenu that appears:

- **PS Test Page**—Enables you to confirm that the PostScript interface is functioning properly. The PS Test Page provides sample images, illustrations, point size examples, and grayscale samples. The following information is also listed: Server name, software version, and date and time printed.
- **PCL Test Page**—Enables you to confirm that the PCL interface is functioning properly. The PCL Test Page provides sample images, illustrations, point size examples, and grayscale samples. The following information is also listed: Server name, software version, and date and time printed.
- **Configuration**—Gives the current device configuration. This page lists general information about the hardware and software configuration of the 7040 Printer Controller, the current options for all Setup settings, and if applicable, the Ethernet and IP addresses of the 7040 Printer Controller.
- **Job Log**—A list of the last 55 print jobs. For information on the fields in the Job Log and on printing it in other forms, see the *User Guide*.
- **PS Font List**—A list of all PostScript fonts resident on the 7040 Printer Controller hard disk.
- **PCL Font List**—A list of all PCL fonts resident on the 7040 Printer Controller hard disk.

Reboot Server—Shuts down all 7040 Printer Controller activity properly and then restarts.

Start Up menu

To access the Start Up menu, power on the copier or select Reboot Server from the Functions menu:

- Power on the copier, wait no more than a few seconds, press the Mode button on the Operation Panel and then press the SETTING key as soon as the option becomes available, or
- Select Reboot Server from the Functions menu and press SETTING as soon as the option is available.

If you do not press the SETTING key within 5 seconds, the 7040 Printer Controller continues the system start-up process.

The Start Up menu offers the following options:

- **Run Setup**— See the *User Guide.*
- **Start System**— Initializes the 7040 Printer Controller and displays the Printer mode screen. See Figure 2-2 on page 2-2.
- **Reboot System**— Shuts down all 7040 Printer Controller activity properly and then restarts.
- Install Software— See “System Software” on page 3-22.
- **Format Disk**— See “System Software” on page 3-22.
- **Upgrade Flash**— See “Flash Upgrade” on page 3-30.
- **Flash Info**— See “Flash Upgrade” on page 3-30.

3

Chapter 3: Service Procedures

Generally, the 7040 Printer Controller does not require regular maintenance. Use the procedures in this chapter to inspect, remove, reseat, or replace major hardware components and also to install system software.

Overview

This chapter includes information on the following:

- Cable connections (page 3-3)
- 7040 Printer Controller components
    - DIMMs (page 3-6)
    - Battery (page 3-7)
    - Hard disk drive (page 3-8)
- System software (page 3-22)

For information on how to remove and replace the 7040 Printer Controller in the copier, see other documentation.

See Figure 3-2 on page 3-5 for an overview of 7040 Printer Controller components. Replacement parts are available from your authorized service representative.

When performing the procedures described in this chapter, see "Precautions" on page viii and "Tools you will need" on page x.

The 7040 Printer Controller system software is installed on the hard disk drive at the factory. You will need to re-install system software if you:

- Replace the hard disk drive
- Upgrade to a more recent version of the system software

3 Service Procedures

Key

1. 7040 Printer Controller
2. Battery
3. HDD cable
4. HDD
5. DIMM
6. DIMM sockets
7. Connector to copier
8. Connector for optional Token Ring Board
9. RJ-45 network connector
10. AUI network connector
11. Parallel port connector

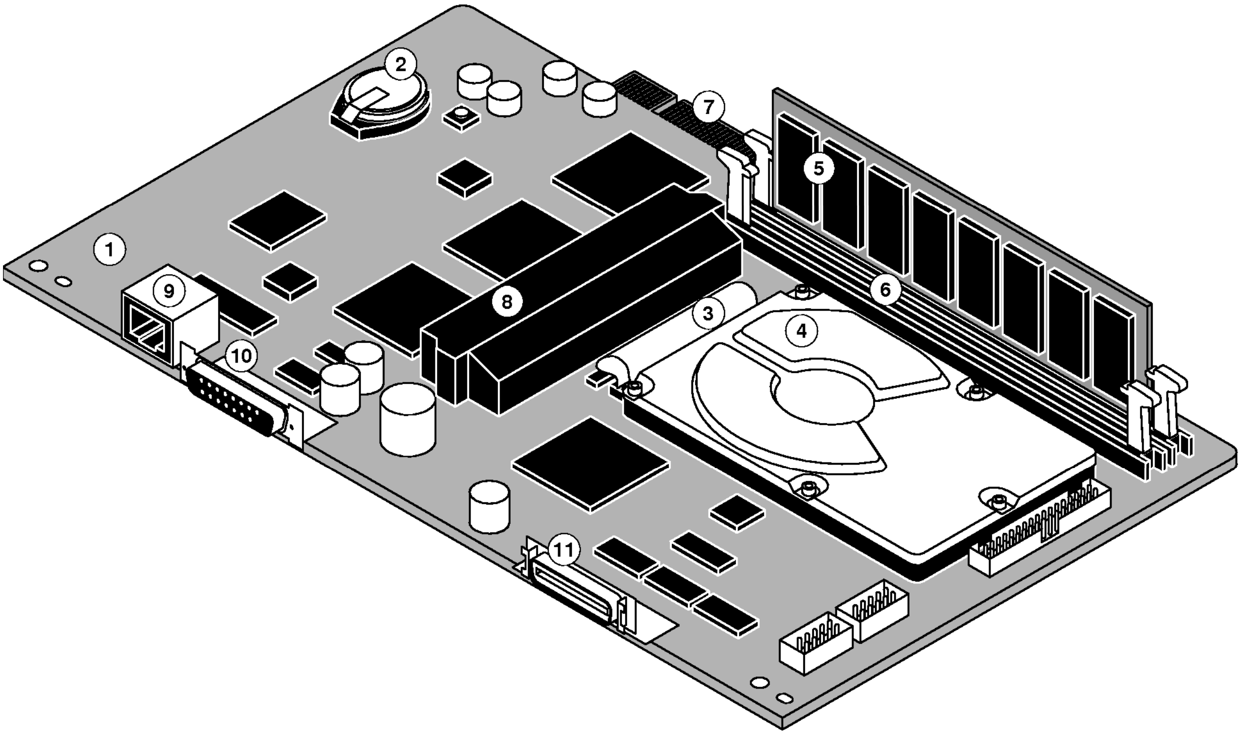


FIGURE 3-1 7040 Printer Controller

Accessing the 7040 Printer Controller

In order to service the 7040 Printer Controller, you need to shut down and open the copier from the back. See other documentation for instructions.

Checking connections

The most common causes of hardware problems are faulty or loose connections. Once you conclude all external connections are good, check the internal connections to

- Copier PCI connector
- HDD at connector J2
- DIMMs at sockets J16 and/or J17

TO CHECK INTERNAL CONNECTIONS

1. **Before you touch any parts inside the copier, attach an ESD grounding wrist strap.**
2. **Inspect internal ribbon cables to see if they are intact.**

   Faulty ribbon cables are easily overlooked. Check the contact point between the HDD cable and connector J2 for separation. If a ribbon cable is suspect, substitute it with a tested cable.
3. **Make sure that all 7040 Printer Controller cables, boards, and DIMMs are properly aligned and well seated on their connectors.**
   - PCI connection to copier. This connection is for the video interface and the Operation Panel interface and for receiving power from the copier power supply.
   - HDD ribbon cable from the HDD to the 7040 Printer Controller connector J2. See Figure 3-5 on page 3-9.
   - Socketed DIMMs at J16 and/or J17. See page 3-6.
   - If an option board is present (for example, a Token Ring board), check 7040 Printer Controller connector J9. See the specific option kit for documentation.
4. **After tightening connections, if one or more 7040 Printer Controller components are still not getting power, you may need to check the copier power supply.**

Replacing 7040 Printer Controller components

The custom 7040 Printer Controller has a 133MHz R4700 CPU that controls the video image data transferred to and from the copier. The 7040 Printer Controller provides the Ethernet networking interface, controls hard disk drive functions, and handles the communication between the 7040 Printer Controller and external devices. The 7040 Printer Controller has two DIMM sockets that can hold a total of 32MB or 64MB of memory (see Figure 3-1 on page 3-2 and also "DIMMs" on page 3-6). The hard disk drive (HDD) is on board. Also included is one 32-bit PCI connector (5 volt) for adding token ring capability.

When the 7040 Printer Controller is installed inside the copier, the connectors for external devices are easily accessible from the back.

The following sections describe how to remove and install the following replaceable parts on the 7040 Printer Controller:

- DIMMs
- Battery
- Hard Disk Drive (HDD)

Make sure you attach an ESD grounding wrist strap and follow standard ESD (electrostatic discharge) precautions before following this procedure.

Key

1. 7040 Printer Controller
2. Battery
3. HDD cable
4. HDD
5. DIMM
6. DIMM sockets
7. Connector to copier
8. Connector for optional Token Ring Board
9. RJ-45 network connector
10. AUI network connector
11. Parallel port connector

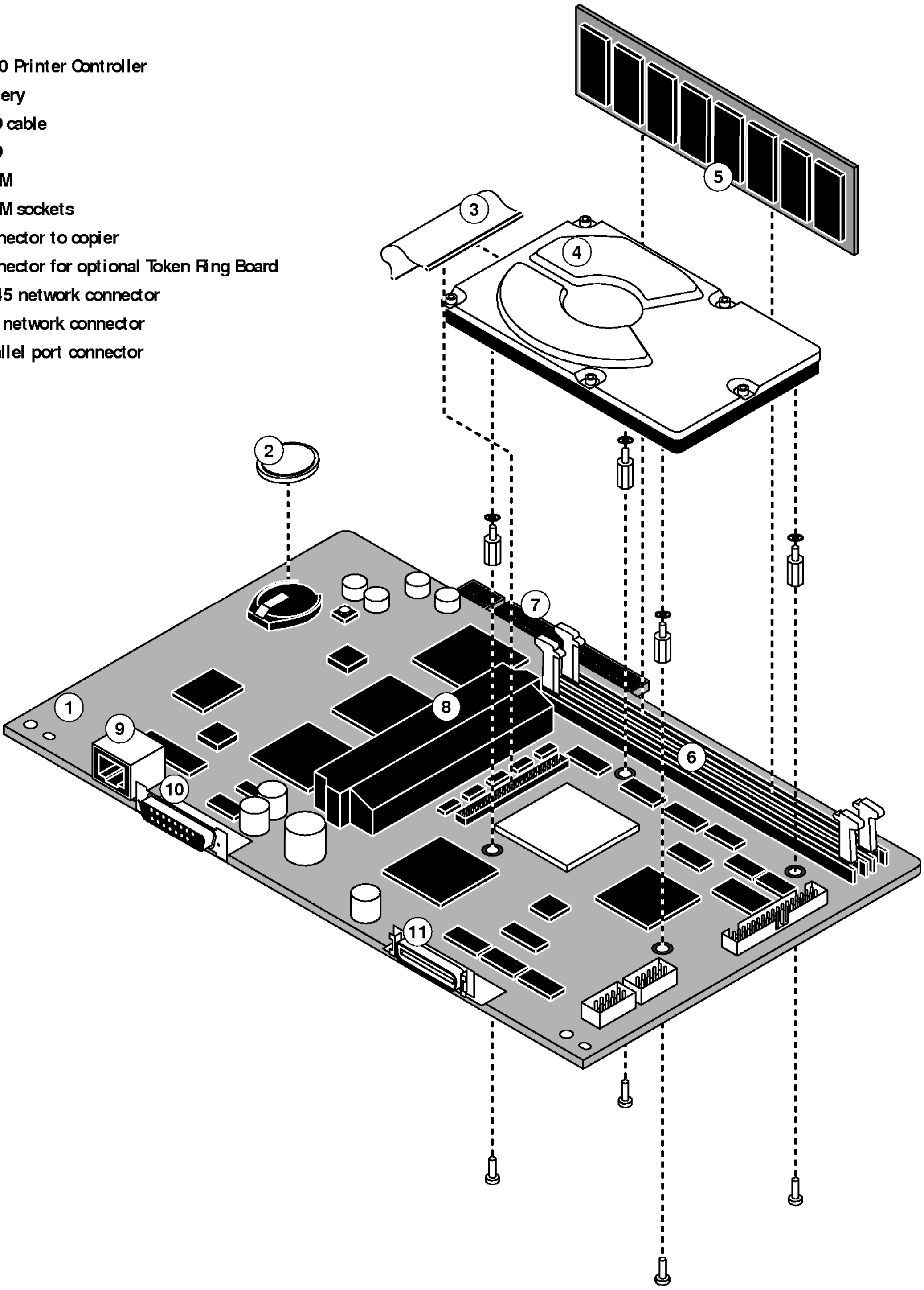


FIGURE 3-2 Components on the 7040 Printer Controller

DIMMs

Each DIMM (dual in-line memory module) is held in place by levers at each end of its socket on the 7040 Printer Controller.

The minimum configuration for the 7040 Printer Controller is 32MB: one 32MB DIMM installed in one socket. To upgrade to 64MB, install a 32MB DIMM in the second socket.

Approved DIMMs are available from your authorized service representative.

TO REPLACE OR UPGRADE A DIMM

1. **To release a DIMM, push outward on the lever on each side of the DIMM (see Figure 3-3).**

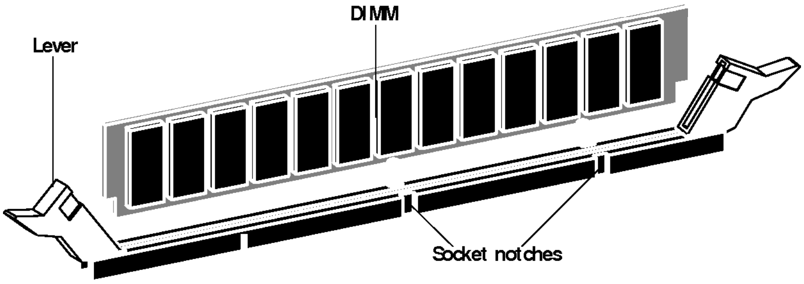


FIGURE 3-3 Releasing a DIMM

2. **Slide the DIMM out of the socket at the same angle as the socket and set it aside.**
3. **To install a DIMM, slide it into the socket at the same angle as the socket. Push the DIMM into the socket until the levers snap into place.**

   Make sure that the levers close securely around the ends of the DIMM and that the DIMM is fully seated in its socket. Avoid flexing the board while you firmly seat the DIMM in its socket.

   The DIMM fits the socket only one way. The two notches on the bottom of the DIMM should line up with the notches in the socket.
4. **Reassemble the unit and verify functionality (see page 3-11).**

   To verify memory capacity, print a Configuration page to check the amount of memory recorded.

Battery

The battery on the 7040 Printer Controller is located at BT1, near the HDD.

TO REPLACE THE BATTERY

1. **Locate the battery on the 7040 Printer Controller (see Figure 3-1 on page 3-2).**
2. **Carefully lift up the clip that holds the battery.**

   Use caution when lifting up the clip; excessive force could cause the clip to lose its tension.

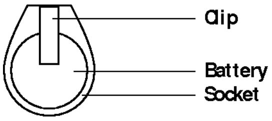
   

   FIGURE 3-4 7040 Printer Controller battery

3. **Pull the battery out of its socket and release the clip.**
4. **To insert a new battery, slide the battery into the socket under the clip with the positive (+) side facing up.**

   Make sure the clip holds the battery securely in the socket.

5. **Reassemble the 7040 Printer Controller and verify functionality (see page 3-11).**

   NOTE: When you power on, let the start-up diagnostics complete, then power off and power on again to initialize the realtime clock.

   The date and time of day are lost when the old battery is removed. See the *User Guide* for instructions on entering Server Setup to program the system date and time.

Hard disk drive

The factory-installed hard disk drive (HDD) is formatted and loaded with all 7040 Printer Controller software, including operating software, system software, network drivers, and printer fonts. Because the HDD is used to store spooled print jobs, available disk space is displayed on the Operation Panel.

If the hard disk drive needs to be replaced, you'll need to install the system software on the new hard disk drive. (Replacement drives are shipped without 7040 Printer Controller system software installed.)

If you are replacing the HDD, you need:

- The appropriate System Software CD
- The latest version of user software (for networked computers that will be printing to the 7040 Printer Controller)

Instructions for installing system software are provided to service technicians in separate kits and also are included in this guide.

Proper handling

Handle the hard disk drive with care:

- Use proper ESD practices when grounding yourself and the 7040 Printer Controller.
- Keep magnets and magnetic-sensitive objects away from the HDD.
- Do not remove the screws on top of the HDD. Loosening these screws voids the warranty.
- Never drop, jar, or bump the HDD.
- Handle the HDD by its sides and avoid touching the printed circuit board.
- Allow the HDD to reach room temperature before installation.

Hard disk drive problems may be a result of the following:

- Loose or faulty connection
- Faulty hard disk drive

Before you decide that the hard disk drive needs to be replaced, make sure that all cables are connected properly.

Make sure you attach an ESD grounding wrist strap and follow standard ESD (electrostatic discharge) precautions before handling 7040 Printer Controller components

TO REMOVE THE HDD

1. **Remove the 7040 Printer Controller from the copier as described in other documentation.**
2. **Remove the four screws that secure the HDD to the board from the bottom of the board.**

   Set the screws aside so you can replace them later.

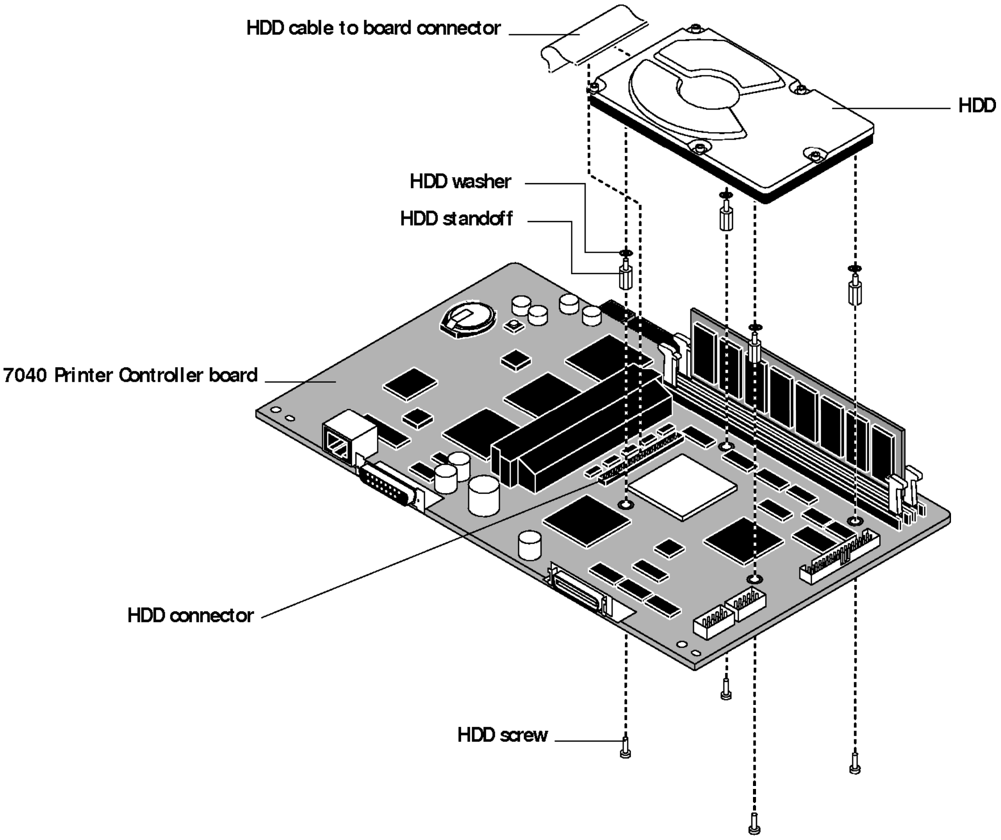

HDD cable to board connector
HDD
HDD washer
HDD standoff
7040 Printer Controller board
HDD connector
HDD screw

FIGURE 3-5 Removing the hard disk drive

3. **Remove the HDD cable from board connector J2 and from the HDD. Set aside the cable so you can use it later.**
4. **Remove the standoffs and washers from the bottom of the HDD. Set aside the standoffs and washers so you can use them later.**
5. **Handle the HDD with care and place it in an antistatic bag.**

   Do not touch the drive with magnetic objects, such as magnetic screwdrivers. Do not place items near the hard disk drive that are sensitive to magnets, such as credit cards and employee ID cards. See "Proper handling" on page 3-8.

TO INSTALL THE HARD DISK DRIVE

Make sure you attach an ESD grounding wrist strap and follow standard ESD (electrostatic discharge) precautions before handling 7040 Printer Controller components.

1. **Handle the hard disk drive with care.**

   Do not touch it with magnetic objects or place any objects near it that are sensitive to magnets. See "Proper handling" on page 3-8.

2. **Screw the standoffs and washers you removed earlier into the bottom of the HDD.**

3. **Connect the HDD cable you removed earlier to the HDD and to board connector J2.**

4. **Align the standoffs in the HDD with holes in the board and secure the HDD to the board using the four screws you removed earlier. (See Figure 3-5 on page 3-9).**

   Make sure the cable remains firmly connected to J2.

5. **Restore functionality as described on page 3-11.**

6. **If the HDD is a replacement, install system software as described on page 3-22.**

Restoring functionality after service

To complete any service procedures performed on the 7040 Printer Controller, reinstall the 7040 Printer Controller inside the copier and verify that it is working properly. To verify the installation, check the connection of the 7040 Printer Controller first to the copier and then to the network and the parallel port.

TO REASSEMBLE AND VERIFY THE 7040 PRINTER CONTROLLER

1. **Reinstall any boards, cables, connectors, and other parts of the 7040 Printer Controller that you loosened during inspection or service.**
2. **Install the 7040 Printer Controller in the copier and reassemble the copier as described in other documentation.**
3. **Before you leave the customer site, verify 7040 Printer Controller operation as described below.**

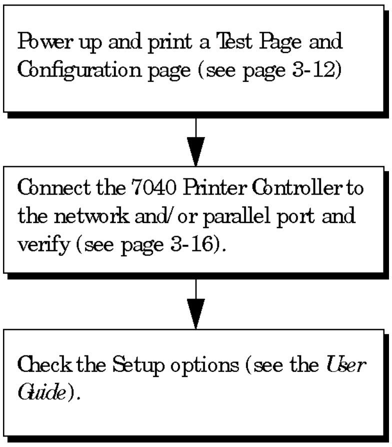

Power up and print a Test Page and Configuration page (see page 3-12)
Connect the 7040 Printer Controller to the network and/or parallel port and verify (see page 3-16).
Check the Setup options (see the *User Guide*).

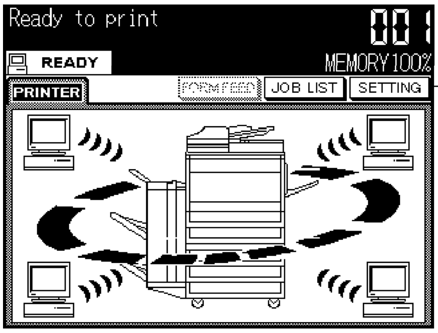
FIGURE 3-6 7040 Printer Controller connection verification steps

Printing a Test Page

Before connecting the 7040 Printer Controller to the network, print each Test Page, one for Postscript (PS) and one for PCL (Printer Control Language). Test Pages are files that resides on the 7040 Printer Controller hard disk drive. Output verifies that the 7040 Printer Controller is functional and connected properly to the copier.

TO PRINT A TEST PAGE

1. **If the copier is powered off, power it on. If the copier is powered on and in Power Save Mode, press the Operation Panel Power Saver ON/OFF button (see Chapter 2).**
2. **Press the MODE button on the Operation Panel (see Figure 2-1) to access Printer mode.**
3. **Wait for the message "Ready to Print" to appear on the touch panel display and press the SETTING key on the touch panel display.**


Ready to print

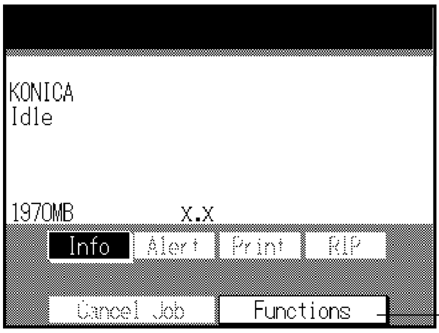
001

READY

MEMORY100%

Press

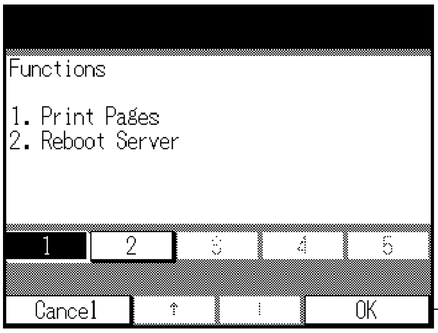
4. **At the 7040 Printer Controller Info screen, press the Functions key.**


KONICA
Idle

1970MB X.X

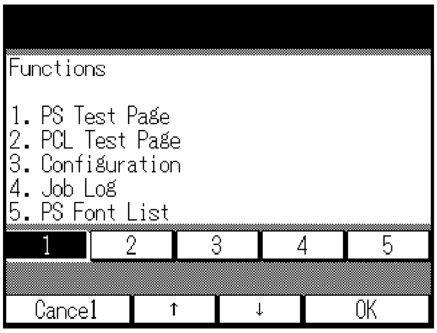
Press

5. **Press OK to select the default option Print Pages.**


Functions
1. Print Pages
2. Reboot Server
1
2
3
4
5
Cancel
↑
↓
OK

Press OK

6. **Press the number key that corresponds to a Test Page option and press OK.**


Functions
1. PS Test Page
2. PCL Test Page
3. Configuration
4. Job Log
5. PS Font List
1
2
3
4
5
Cancel
↑
↓
OK

Select the number and then OK

The message Sending Test Page is displayed.

NOTE: When both PS (PostScript) and PCL (Printer Control Language) are installed, make sure to print both Test Pages.

7. **Examine the Test Page.**

Printing the Test Page confirms that the 7040 Printer Controller is functional and connected properly to the copier. (Poor quality may indicate a need to service or adjust the copier rather than the 7040 Printer Controller.)

You are now ready to connect the 7040 Printer Controller to the network and print a few test documents to verify the network connection. If you have not already done so, you may wish to print a Configuration page.

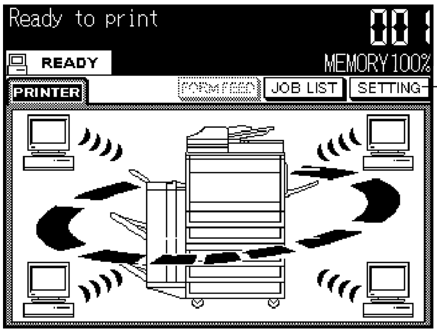
Printing the Configuration page

Before you perform any service procedure, you should print the 7040 Printer Controller Configuration page (if possible) so that you are prepared to return the settings to their former configuration, if necessary.

After the connection to the network is made, the network administrator can customize Setup options according to the network and user environment. Using the Configuration page as a guide can help speed up this process. For more information, see the *User Guide.*

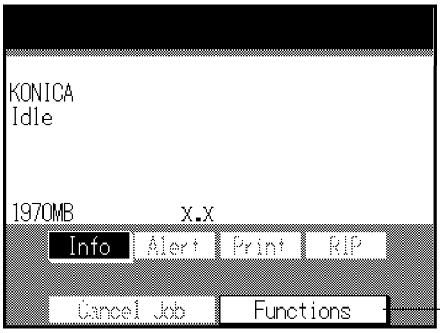
TO PRINT THE CONFIGURATION PAGE

1. **If the copier is powered off, power it on. If the copier is powered on and in Power Save Mode, press the Operation Panel Power Saver ON/OFF button (see Chapter 2).**
2. **Press the MODE button on the Operation Panel (see Figure 2-1) to access Printer mode.**
3. **Wait for the message "Ready to Print" to appear on the touch panel display then press the SETTING key on the touch panel display.**



Ready to print

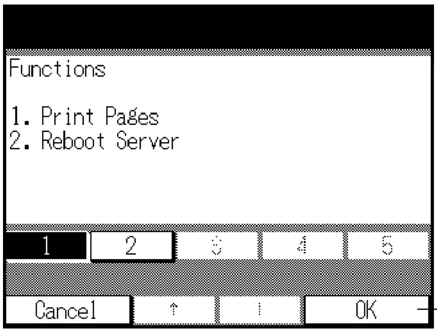
4. **At the 7040 Printer Controller Info screen, press the Functions key.**



KONICA
Idle

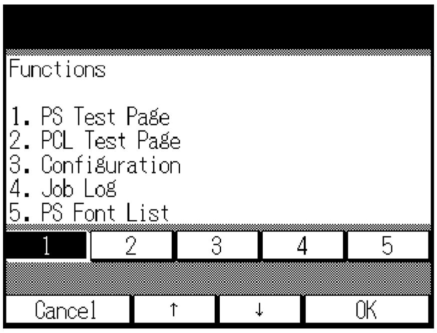
1970MB X.X

5. **Press OK to select the default option Print Pages.**


Functions
1. Print Pages
2. Reboot Server
1
2
3
4
5
Cancel
↑
↓
OK

Press OK

6. **Press the number that corresponds to the Configuration option and press OK.**


Functions
1. PS Test Page
2. PCL Test Page
3. Configuration
4. Job Log
5. PS Font List
1
2
3
4
5
Cancel
↑
↓
OK

Select the number and then OK

The message Sending Configuration is displayed.

7. **Save the Configuration page for future reference.**

Verifying connection to the network

The 7040 Printer Controller provides connectivity to an Ethernet network, either thinnet, thicknet, or twisted pair. Token Ring compatibility is available using the optional Token Ring kit (see the documentation included with that kit for more information).

This section describes how to connect the 7040 Printer Controller to the network and then print a few test documents in order to verify the connection.

Ethernet network connection

The 7040 Printer Controller has two external Ethernet network connectors:

- RJ-45 connector for 10BaseT/100BaseTX

  A Category 3 or Category 5 unshielded twisted pair (UTP) network cable can be used for 10BaseT. A Category 5 cable is required for 100BaseTX.

- A 15-pin D AUI (Attachment Unit Interface) connector for one of the following:
  - 10Base2 (thinnet)
  - 10Base5 (thicknet)

  Thinnet (coaxial 10Base2 Ethernet cable) requires an external transceiver attached directly to the AUI connector. Thicknet (coaxial 10Base5 Ethernet cable) requires an external transceiver with an AUI drop cable connected to the AUI connector.

NOTE: Only one Ethernet connection can be made to the 7040 Printer Controller at a time. Use either the AUI connector or the RJ-45 connector, never both.

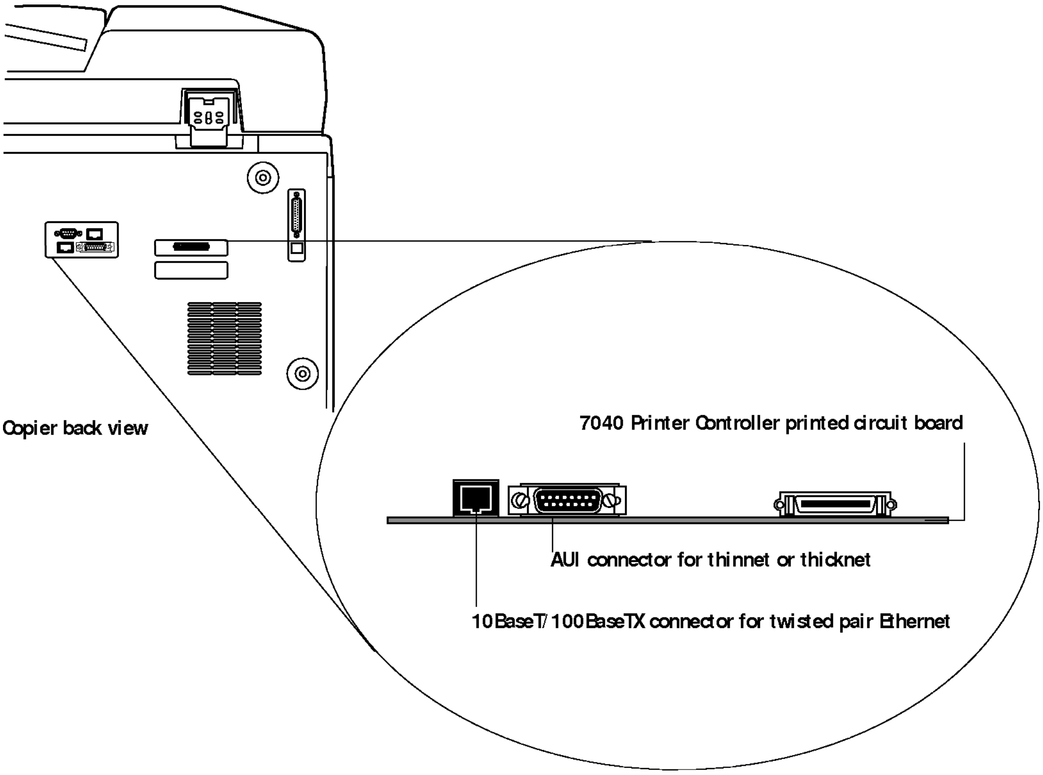

Copier back view
7040 Printer Controller printed circuit board
AUI connector for thinnet or thicknet
10BaseT/100BaseTX connector for twisted pair Ethernet

FIGURE 3-7 7040 Printer Controller network connectors

TO CONNECT A THINNET OR THICKNET CABLE TO THE 7040 PRINTER CONTROLLER

1. **Power off the copier before connecting it to any network device.**
2. **With the AUI slide latch in the open position, connect the network cable to the AUI connector on the 7040 Printer Controller. Slide the latch to lock the connector in place.**
   - To connect a 10Base2 thinnet cable to the 7040 Printer Controller, an external Ethernet transceiver must be installed on the 7040 Printer Controller AUI connector. The thinnet cable then connects to the BNC connector on the external transceiver.

     If the transceiver has an SQE switch, make sure the switch is set to OFF.
   - To connect a 10Base5 thicknet cable to the 7040 Printer Controller, connect the AUI drop cable directly to the AUI connector on the 7040 Printer Controller.
3. **Configure Setup options.**

   It is the network administrator's responsibility to configure Setup according to the network and user environment. Default settings in Setup are adequate although they may not be optimal for the user's environment. Refer the network administrator to the *User Guide* for Setup information.
4. **After configuring Setup options, verify the network connection.**

   Once the network connection has been made and the 7040 Printer Controller has the correct Setup configuration and is Idle, the 7040 Printer Controller should be available on the network.

   If necessary, the network administrator should perform any additional network requirements, verify the network connection, verify that the 7040 Printer Controller appears on the list of printers, and print a few test documents from a networked computer that will use the 7040 Printer Controller. (See the *User Guide* for more information.)

TO CONNECT A TWISTED PAIR CABLE TO THE 7040 PRINTER CONTROLLER

A Category 5 unshielded twisted pair (UTP) network cable must be used for 100BaseTX. It connects to the RJ-45 connector on the 7040 Printer Controller (see Figure 3-7 on page 3-17).

1. **Power off the copier before connecting the 7040 Printer Controller to any network device.**
2. **Connect the network cable to the RJ-45 connector on the 7040 Printer Controller.**
3. **Configure Setup options.**

   It is the network administrator's responsibility to configure Setup according to the network and user environment. Default settings in Setup are adequate although they may not be optimal for the user's environment. Refer the network administrator to the *User Guide* for Setup information.
4. **After configuring Setup options, verify the network connection.**

   Once the network connection has been made and the 7040 Printer Controller has the correct Setup configuration and is Idle, the 7040 Printer Controller should be available on the network.

   The network administrator should perform any additional network Setup, verify the network connection, verify that the 7040 Printer Controller appears in the list of printers, and print a few test documents from a networked computer that will use the 7040 Printer Controller. (See the *User Guide* for more information.)

Verifying the parallel port connection

On the 7040 Printer Controller, the parallel connector (female 36-pin mini-Centronics) provides a high-speed interface port for connecting directly to the parallel port of a PC. The parallel port can be used for installing system software and for printing documents.

The 7040 Printer Controller can be connected to the network and to a parallel port device at the same time.

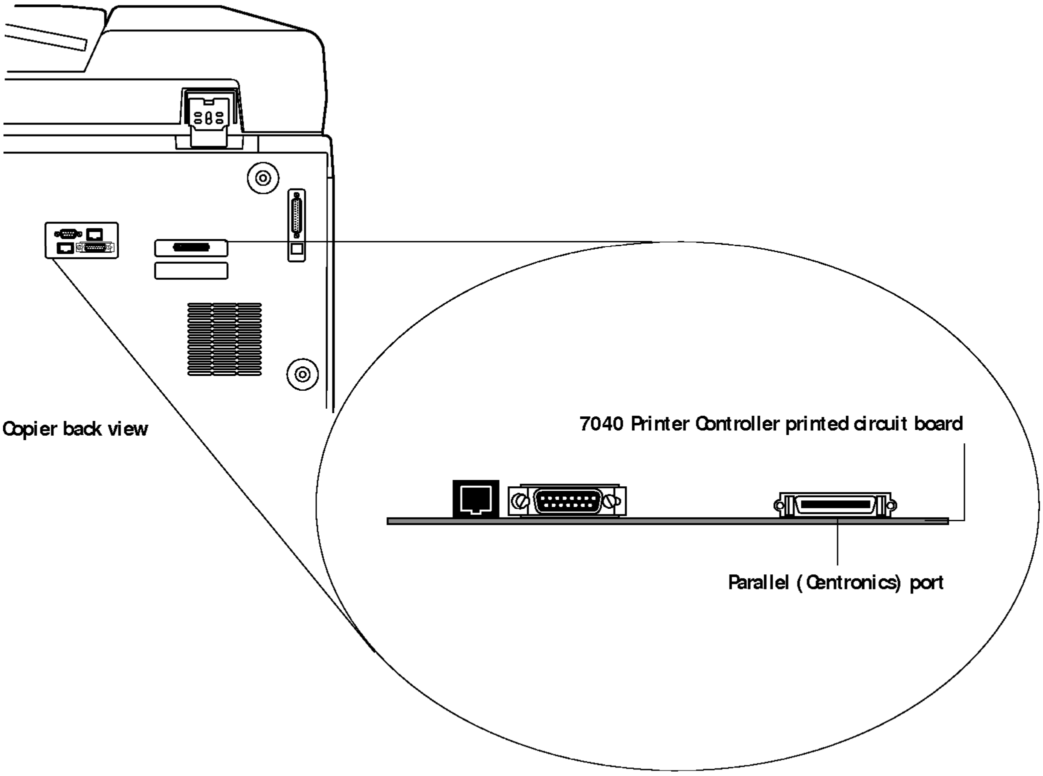

Copier back view
7040 Printer Controller printed circuit board
Parallel (Centronics) port

FIGURE 3-8 7040 Printer Controller parallel port connector

An IEEE 1284 bi-directional cable is required. One end of the cable requires a male IEEE 1284-C (36-pin mini-Centronics) connector for connecting to the 7040 Printer Controller.

NOTE: For optimal performance, use a short cable. Longer cables may cause erroneous operation.

TO CONNECT THE 7040 PRINTER CONTROLLER TO A PC

NOTE: If the PC is for installing system software, make sure it meets the minimum requirements specified in "Installing System Software" on page 3-23.

1. **Power off the copier before connecting the 7040 Printer Controller to a PC.**
2. **Power off the PC.**
3. **Connect a parallel (Centronics) cable to the 36-pin mini Centronics connector on the 7040 Printer Controller.**
4. **Connect the other end of the parallel cable to the parallel port of the PC.**

   If there is more than one parallel port connector on the back of the PC, ask the network administrator to indicate the preferred parallel port to use for the copier.
5. **Power on the PC and the copier.**
6. **Configure Setup options.**

   It is the network administrator's responsibility to configure Setup according to the network and user environment. Default settings in Setup are adequate although they may not be optimal for the user's environment. Refer the network administrator to the *User Guide* for Setup information.
7. **After configuring Setup options, verify the parallel port connection.**

   Once the parallel port connection has been made and the 7040 Printer Controller has the correct Setup configuration and is Idle, the network administrator should print a few test documents from the PC connected to the copier. See the *User Guide* for more information.

System Software

The 7040 Printer Controller System Software CD includes one system software file to be installed over the parallel port of the 7040 Printer Controller.

Install system software when:

- You replace the 7040 Printer Controller hard disk drive (HDD)
- You upgrade to a more recent version of the system software

System Software installation reminders

Keep in mind the following when installing system software:

- **Job Log**—Formatting the HDD deletes the list of jobs in the Job Log and any jobs in the queues. The network administrator at the customer site can save a current list of jobs (not the actual job) from the Job Log using Fiery Spooler or WebSpooler.
- **Fonts**—Formatting the HDD deletes all fonts that the customer has installed on the 7040 Printer Controller. Only resident fonts will be restored during system software installation. Fiery Downloader can be used to reinstall additional fonts.

  To determine which additional fonts were downloaded to the 7040 Printer Controller, print the Font List before you format the HDD and again after you complete the system software installation. Any fonts not listed after installation will need to be reinstalled. See the *User Guide* for more information.
- **Language**—Screens for installing system software are always displayed in English, even if the copier is configured for another language.
- **Compatibility**—The latest user software must be installed onto all computers that print to the 7040 Printer Controller. Using incompatible versions of the system and user software may result in system problems.

Installing System Software

To install system software using the parallel port on the 7040 Printer Controller, you need:

- A PC with Windows 95 or better
    - A CD-ROM drive built in or attached
    - At least 200MB of disk space free
    - Support for ECP mode on the parallel port
- IEEE 1284 bi-directional parallel cable (short)

  One end of the parallel cable requires a male IEEE 1284-C (36-pin mini-Centronics) connector for connecting to the 7040 Printer Controller.

The PC will need to be configured so the parallel port mode in the BIOS is set to ECP. When you access the PC BIOS to set the parallel port mode to ECP, you may discover that ECP is the default mode, or you may discover that ECP mode is not supported at all. If ECP is not supported, you can either install an add-in board (not provided), use a different PC, or opt for a much slower installation using Compatibility Mode.

In addition to accessing the BIOS, setting up the PC also requires certain port and printer settings in Windows 95. Before you begin installing system software, follow the procedure for setting up the PC.

TO SET UP THE PC

1. **Access the PC BIOS and make sure that Parallel Port Mode is set to ECP.**

   Power on the PC and immediately press the key indicated on your monitor for entering the BIOS (or a likely key if it is not indicated). Pressing a likely key repeatedly (ESC, DEL, F1, or a combination) may interrupt the starting of Windows and access the BIOS or give you directions for accessing the BIOS.

   Once in the BIOS, you may have to scroll through several screens to reach the settings for the parallel port. After setting the Parallel Port Mode to ECP, save your changes and exit the BIOS.

2. **Install the PostScript printer driver for the 7040 Printer Controller from the User Software CD in the Windows 95 subdirectory.**

   This driver supports IEEE 1284 fast bi-directional throughput over an ECP parallel port and allows you to configure all port and spool settings required for a successful installation. You may skip this step if a comparable printer driver is already installed on the PC. See the *User Guide* for directions on installing printer drivers.

3. **In Windows 95, click the Start button, point to Settings, and click Printers.**

4. **Click the icon for the printer and choose Properties from the File menu.**

5. **Click the Details tab and make sure the box "Print to the following port:" reads exactly as follows: LPT1: (ECP Printer Port).**

   If this box reads LPT1: (Printer Port), then Parallel Port Mode is not set to ECP (see step 1). Compatibility mode will work but the installation will take much longer.

6. **Click Spool Settings and select "Spool print jobs so program finishes printing faster," "Start printing after first page is spooled," and "Disable bi-directional support for this printer". Then click Apply and click OK.**

   "Start printing after first page is spooled" takes longer but assures no disruption from a parallel port timeout.

   Disabling Windows 95 support for the bi-directional parallel port helps the system software installation to succeed. Using the PostScript printer driver included in the Windows 95 subdirectory of the 7040 Printer Controller User CD ensures that this option is not grayed out.

7. **Click Port Settings and ensure that "Spool MS-DOS print jobs" and "Check port state before printing" are checked. Click OK.**

8. **Click Apply, then OK to activate the settings and exit from the Printer Properties screen.**

The PC is properly configured. Now prepare for the installation.

TO PREPARE FOR INSTALLATION USING THE PARALLEL PORT

1. **Print the Configuration page from the Functions menu (if possible) to record the customer's current configuration.**

   Setup settings are reset to the default configuration when system software is installed.

2. **Print the Font List from the Functions menu.**

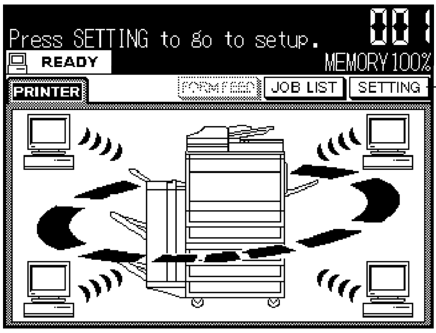
   The Font List details what fonts are resident on the 7040 Printer Controller HDD. Along with the fonts that are provided on the System Software CD, the customer may have installed additional fonts that will be deleted when the HDD is formatted.

3. **Power off the 7040 Printer Controller and the PC before attaching the cable.**

4. **Connect an IEEE 1284 cable to the LPT1 port on your PC (generally, a 25-pin D-type connector) and to the parallel port connector on the 7040 Printer Controller (see Figure 3-8 on page 3-20).**

5. **Power on the copier and wait a few seconds then press the MODE button on the Operation Panel.**

6. **Press SETTING as soon as the option is available.**

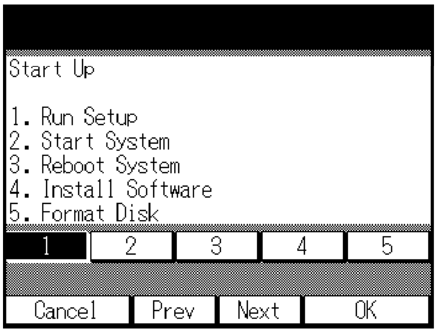
   

   Press SETTING to go to setup.

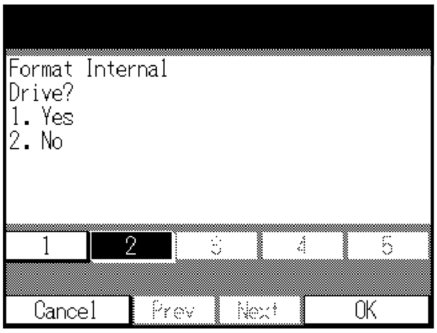
   Press

   If you do not press the SETTING key within five seconds, the 7040 Printer Controller continues the start-up process. If this occurs, reboot the 7040 Printer Controller and try again.

7. **At the Start Up screen, press the number that corresponds to the Format Disk option then press OK. To confirm “Format Internal Drive?” press the number that corresponds to Yes and then OK.**


Start Up
1. Run Setup
2. Start System
3. Reboot System
4. Install Software
5. Format Disk
1
2
3
4
5
Cancel
Prev
Next
OK

Select the number and then OK


Format Internal Drive?
1. Yes
2. No
1
2
3
4
5
Cancel
Prev
Next
OK

Select the number for Yes and then OK

8. **At the Select Level screen, press the number that corresponds to the Standard option and then press OK.**

   Wait while status messages appear.

   NOTE: The format options Full and Full & Verify are normally not required. If you suspect a problem with the HDD, you can select the Full format method to correct any bad sectors on the disk (30 to 60 minutes). If problems persist, you can select the Full & Verify format as a diagnostic (60 minutes or longer).

9. **At the Format OK screen, press OK to return to the Start Up screen.**

Now you are ready to do the software installation procedure.

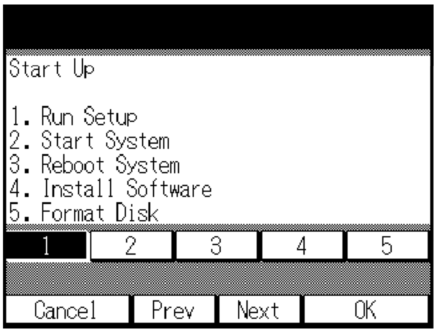
TO INSTALL SYSTEM SOFTWARE

1. **Power on the PC and then insert the System Software CD into the CD-ROM drive.**
2. **In the Windows Start menu, point to Programs, and click MS-DOS Prompt to bring up an MS-DOS window.**

   Do not use the option to "Shut down and Restart Windows in DOS mode".
3. **At the MS-DOS prompt, change from the C:\ drive to the CD-ROM directory and do a dir command to display the filename of the software.**

   To find the correct letter for the CD-ROM drive, open the My Computer folder and read the drive letter associated with the CD-ROM icon.

   The filename including the extension is displayed at the end of the MS-DOS line of text providing information about the file. If more than one file is in the directory, choose the filename most likely to be the system software installation file. For example, if filenames include KON10.UM and BROMKON.EFI, then to install system software, prepare to install the KON10.UM file.
4. **At the Start Up screen on the Operation Panel, press the number that corresponds to the Install Software option and press OK.**



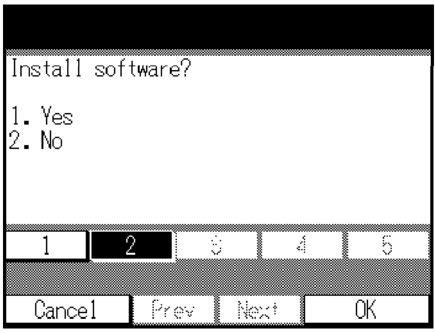
Select the number and then OK

5. **At the MS-DOS prompt, type the following command but *do not* press the enter (or return) key yet:**
   copy *filename* lpt1 /b

   filename refers to the file on the System Software CD that contains the system software and /b specifies the binary option (not ASCII).

   NOTE: Do *not* press the enter (or return) key yet.

6. **At the "Install software?" screen, press the number that corresponds to Yes and press OK.**



Install software?

1. Yes
2. No

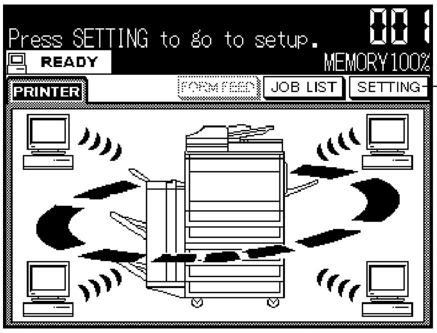
Select the number and then OK

7. **At the message "Please copy file to parallel port" press the enter (or return) key on the PC and then wait.**

   Wait while the 7040 Printer Controller indicates it is receiving the file, clearing the port, and unpacking the file.

8. **Press OK at the "Software installation completed" screen, the Start Up screen, and the prompt to reboot.**

9. **Press SETTING as soon as the option is available.**



Press SETTING to go to setup.

Press

   If you do not press the SETTING key within five seconds, the 7040 Printer Controller continues the start-up process. If this occurs, reboot the 7040 Printer Controller and try again.

10. **At the Select Language screen, select the number that corresponds to the name of the language you want to use and then OK.**

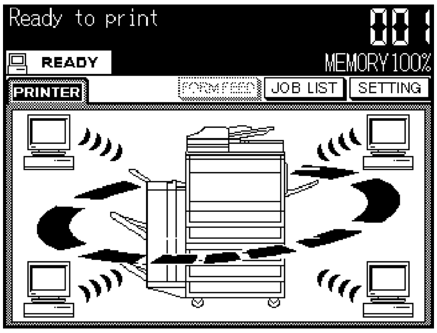
    Wait while the system reboots.

11. **Press the Mode button and the SETTING key as soon as the option is available.**

12. **At the Start Up screen, press OK to select the default option Run Setup. In Setup, reenter the customer's settings from the Configuration page that you printed earlier.**

    Enter settings for Server, Network, and Printer Setup in that order. Bypass settings not included on the Configuration page if it is more appropriate for the network administrator to set them. See the *User Guide* for more information.

13. **When the 7040 Printer Controller reaches Ready (Ready to print), exit MS-DOS and remove the System Software CD from the CD-ROM drive.**



14. **Power off the 7040 Printer Controller and the PC before removing the parallel cable.**

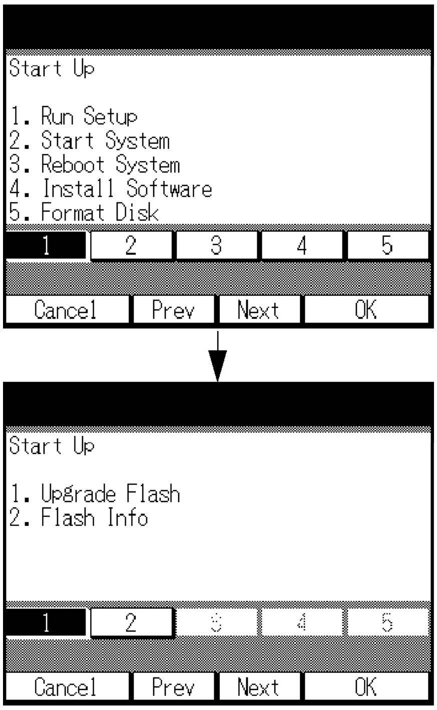
Flash Upgrade

Perform a Flash upgrade only if you have been informed that a Flash upgrade is necessary and you have received a Flash upgrade file.

The following procedures describe how to check the Flash version and how to upgrade if required.

TO CHECK THE FLASH VERSION

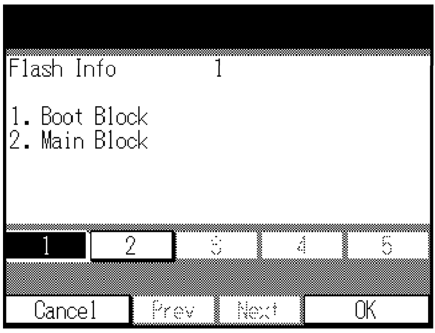
1. **If necessary, power on the copier, wait a few seconds, press the Mode button on the Operation Panel, and then press SETTING as soon as the option is available.**
2. **Press Next to display the second Start Up screen, then press the number that corresponds to the Flash Info option and press OK.**


Start Up
1. Run Setup
2. Start System
3. Reboot System
4. Install Software
5. Format Disk
1
2
3
4
5
Cancel
Prev
Next
OK
Start Up
1. Upgrade Flash
2. Flash Info
1
2
3
4
5
Cancel
Prev
Next
OK

Press Next

Select the number and then OK

3. **At the next screen, press the number corresponding to Boot Block and then OK.**



Select the number and then OK

4. **Verify the version of the Boot Block. If the version displayed is earlier than the version of the Flash upgrade file provided, you will need to perform the procedure "To install the Flash upgrade" on page 3-32.**
5. **Repeat this procedure for the Main Block so that you verify both the Boot Block and the Main Block.**

Before performing the procedure "To install the Flash upgrade":

- Obtain a PC that meets the requirements described on page 3-23.
- Configure the PC for installing a file over the parallel port as described on page 3-24.
- Attach the PC to the parallel port of the 7040 Printer Controller as described on page 3-20 and page 3-21.

NOTE: If the Setup configuration has been changed from the default or additional fonts have been installed, print the Configuration page and the Font List from the Functions menu before beginning the following procedure. After performing the Flash upgrade use these pages to reconfigure the system if necessary.

This procedure assumes that you have the Flash upgrade file available for installation.

TO INSTALL THE FLASH UPGRADE

1. After connecting the PC to the 7040 Printer Controller parallel port, power on the copier and the PC.

2. Press the Mode button on the Operation Panel and then press SETTING as soon as the option is available.

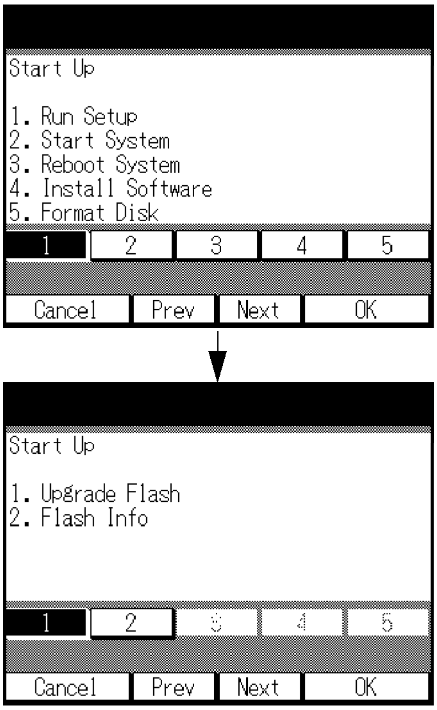
3. If the Flash upgrade file is on CD or floppy disk, insert the media into the PC. In the Windows Start menu, point to Programs, click MS-DOS Prompt, and then change to the directory with the Flash upgrade file.

4. At the MS-DOS prompt, type the following command but *do not* press the enter key yet:

   ```
   copy filename lpt1 /b
   ```

   filename refers to the Flash upgrade file and / b specifies the binary option (not ASCII).

5. Press Next to display the second Start Up screen, then press the number that corresponds to the Upgrade Flash option and press OK.


Start Up
1. Run Setup
2. Start System
3. Reboot System
4. Install Software
5. Format Disk
1
2
3
4
5
Cancel
Prev
Next
OK
Start Up
1. Upgrade Flash
2. Flash Info
1
2
3
4
5
Cancel
Prev
Next
OK

Press Next

Select the number and then OK

6. At the copier screen message “Please copy flash update file to the parallel port”, press the enter (or return) key on the PC and then wait.

7. When the copier screen message appears, “New ROM... Upgrade?”, press the number that corresponds to Yes and then OK and then wait.

8. **Wait during the copier screen message "Updating...Do NOT turn off."**

   Do not turn off the copier during this message. Otherwise, the 7040 Printer Controller. will be damaged.

9. **On the copier Operation Panel press SETTING as soon as the option is available if you want to select another option from the Start Up menu. Otherwise, let the system continue its startup sequence until it reaches Ready (Ready to print).**

10. **On the PC, exit MS-DOS and shutdown Windows.**

11. **Power off the 7040 Printer Controller and the PC before removing the parallel cable.**

    If the Flash upgrade file was on a CD or floppy disk make sure you remove it before powering off the PC.

12. **Check the Flash version to make sure the upgrade was successful (see page 3-30).**

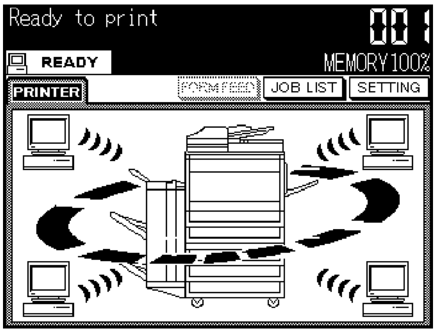
Chapter 4: Troubleshooting Procedures

This chapter identifies the source of common problems that may occur with the 7040 Printer Controller and suggests ways of correcting them.

The troubleshooting process

The troubleshooting process is designed to eliminate the most obvious causes of failure before progressing to more complex issues. "Where problems occur" on page 4-2 gives an overview of the 7040 Printer Controller components and indicates areas most likely to require troubleshooting.

In normal operation, if you press the Mode button on the copier Operation Panel, the following screen is displayed once the 7040 Printer Controller completes it startup sequence.



If the 7040 Printer Controller fails to complete its startup sequence and does not reach Ready (Ready to print) on the Printer mode screen, the most likely cause is a loose cable or board connection. See "Checking connections" on page 4-4 for descriptions of 7040 Printer Controller parts and connections.

- Try a phone check before you go to the customer site.

  "Before you go to the customer site" on page 4-3 suggests areas you should check out before making a service call to the customer site. With a phone call, you can find out if the problem is a simple operating failure or a failure caused by a network or configuration change. You can ask the customer to check for loose cables on the back of the copier and loose connections at a power strip or outlet.

- Check for obvious causes of problems.

  "Preliminary on-site checkout" on page 4-4 takes you through the initial visual checkouts you should make when you arrive at the customer site. You can check the touch panel display for an error message and inspect the copier externally and internally for the most common problems, such as loose cables, connectors, or boards.

- Check network connections.

  "Checking the network" on page 4-9 provides guidelines for checking the network connections between the copier and the computers to which it is connected as well as information on several printing problems.

Where problems occur

The 7040 Printer Controller is a built-in print server for copiers, and it is generally part of a configuration like the one shown in Figure 4-1. Problems may occur in one of the following areas:

- The 7040 Printer Controller or the copier
- The interface between the 7040 Printer Controller and the copier
- The interface between the 7040 Printer Controller and computers that print to it

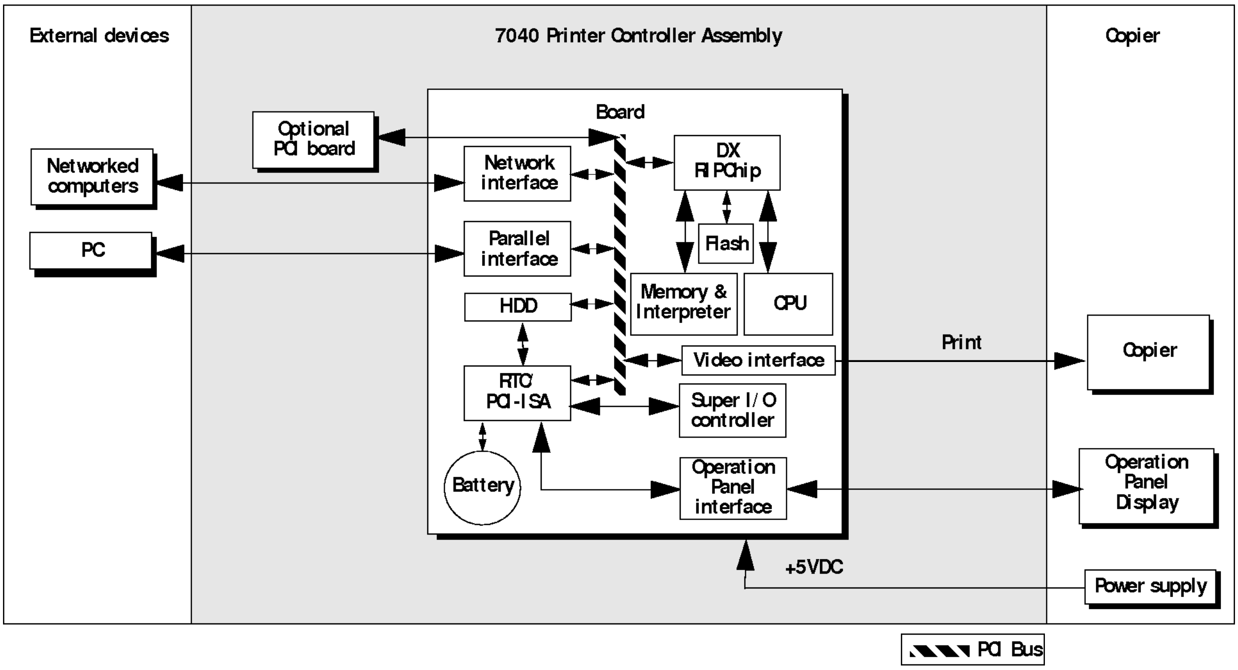

External devices
7040 Printer Controller Assembly
Copier
Optional PCI board
Board
Networked computers
PC
Network interface
Parallel interface
HDD
RTC/ PCI-ISA
Battery
DX RIPChip
Flash
Memory & Interpreter
CPU
Video interface
Super I/O controller
Operation Panel interface
Print
Copier
Operation Panel Display
+5VDC
Power supply
PCI Bus

FIGURE 4-1 7040 Printer Controller functional diagram

This chapter does not attempt to provide troubleshooting information for attached computers such as Mac OS and PCs, for copiers, or for extensive networks. You should refer problems in these areas to the appropriate service departments and network administrators.

Before you go to the customer site

Before you make a service call to a customer site, talk to the customer on the phone, and check out the following items:

1. **Does the copier work?**

   If the copier works, but the user cannot print the 7040 Printer Controller Test Page, have the customer check for any error messages displayed on the touch panel display. If an error has occurred on the 7040 Printer Controller that probably requires a service call.

2. **Is the failure caused by a simple operating problem?**

   - Is there a printing problem?
     - Does the 7040 Printer Controller Test Page fail to print?
     - Does the 7040 Printer Controller fail to respond to a print command?
     - Does printing seem to take a long time?
     - Is print quality poor?
     - Does the 7040 Printer Controller fail to appear in the list of printers?
   - Has the customer noted any error messages on the touch panel display?

     If the answer to any of these questions is yes, refer the customer to "7040 Printer Controller Error Messages," in the *User Guide.*

     If the customer has followed the corrective actions in the *User Guide* and has failed to solve the problem, be prepared to make a service call. Keep a log of the failures and messages the customer has observed.

3. **Has the customer made any network changes?**

   If network changes have occurred, request that the customer's network administrator verify the 7040 Printer Controller network requirements.

4. **Is the user having printing problems with a particular image file?**

   If there are problems with files from particular applications, the user may be more successful using different print settings.

If your telephone call fails to clear up the problem, proceed to the next phase, the preliminary on-site checkout.

Preliminary on-site checkout

Your goal in the preliminary on-site checkout is to eliminate obvious problems, such as loose or missing cables and connectors.

Checking connections

Before you remove the copier cover:

- Check that external interface cables are plugged into the proper connectors at the back of the copier.

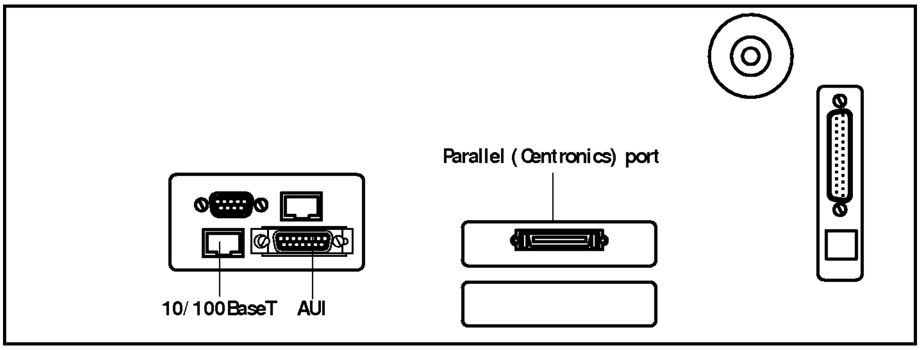


FIGURE 4-2 External connectors

- Make sure the power cable is plugged into the wall outlet and that the copier is powered on.

Also, see "Checking connections" on page 3-3. See other documentation for guidelines when disassembling, checking, and reassembling the copier. If all the connectors are in place and the problem still exists when the copier is powered on, then proceed to the next stage of troubleshooting.

TO CHECK INTERNAL CONNECTIONS

1. **Before you touch any parts inside the copier, attach an ESD grounding wrist strap.**
2. **Inspect internal ribbon cables to see if they are intact.**

   Faulty ribbon cables are easily overlooked. Check the contact point between the cable and the connector to ensure that they have not separated. If a ribbon cable is suspect, substitute it with a tested cable.
3. **Make sure that all 7040 Printer Controller cables, boards, and DIMMs are properly aligned and well seated on their connectors.**
   - PCI connection to copier. This connection is for the video interface and the Operation Panel interface and for receiving power from the copier power supply.
   - HDD ribbon cable from the HDD to the 7040 Printer Controller connector J2. See Figure 3-5 on page 3-9.
   - Socketed DIMMs at J16 and/or J17. See page 3-6.
   - If an option board is present (for example, a Token Ring board), check 7040 Printer Controller connector J9. See the documentation in the specific option kit for information.
4. **After tightening connections, if one or more 7040 Printer Controller components are still not getting power, you may need to check the copier power supply.**

Startup diagnostics

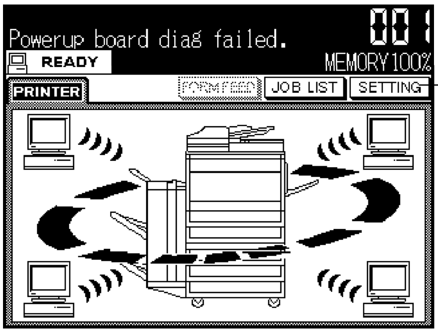
Startup diagnostics are completed within a few seconds. They are performed in the background every time you power on the copier or select Reboot Server from the Functions menu. If an error occurs, you can check the touch panel display for details of the error. The following table lists the Startup diagnostics.

TABLE 4-1 Possible errors during Startup diagnostics

Test name	Area tested on 7040 Printer Controller	Suggested action
RTC Self RTC R/W Reg RTC Start	Realtime Clock chip	• Replace the battery on the 7040 Printer Controller (see "Battery" on page 3-7). • If the problem persists, replace the 7040 Printer Controller.
I2C EEPROM	I2C EEPROM	• Replace the 7040 Printer Controller.
ENET SLV REG	Ethernet controller chip DIMMs	• Check DIMMs. • Have network administrator verify network. • If the problem persists, you may need to replace the 7040 Printer Controller.
IDE Chip	EIDE controller chip	• Replace the 7040 Printer Controller
MEM DIMM INFO MEM ADDRESS	DIMMs on the 7040 Printer Controller and the on-board chip that holds information about the DIMM	• Make sure any DIMM installed is approved by Electronics for Imaging, Inc. • Reseat DIMMs in their sockets and restart the 7040 Printer Controller in order to run startup diagnostics. • If the problem persists, replace each DIMM one at a time with a good DIMM until you locate the faulty DIMM. • If the problem persists, you may need to replace the 7040 Printer Controller.
BOOTROM	boot ROM (Flash)	• Reinstall system software. • Upgrade the Flash (if provided with a special boot ROM file). • If the problem persists, you may have to replace the 7040 Printer Controller.
TOKEN RING	Token Ring interface on motherboard if Token Ring PCI board is present	• Check Token Ring connections. • If the problem persists, replace Token Ring board. • If the problem persists, replace the 7040 Printer Controller.

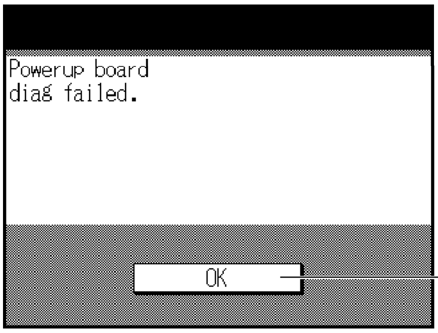
Diagnostic Info

If one or more errors occur during the startup diagnostics, the following screen appears. For diagnostic information, press SETTING and at the next screen press OK.


READY
MEMORY100%
PRINTER
FORMFEED
JOB LIST
SETTING

Powerup board diag failed.

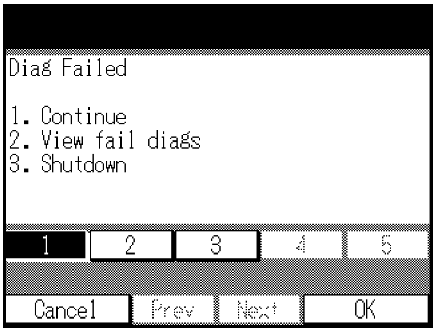
Press



Powerup board
diag failed.

Press

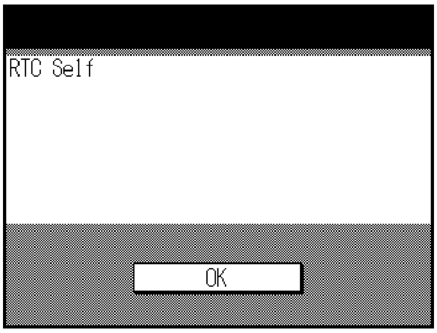
The Diag Failed screen is displayed with the following options:


1
2
3
4
5
Cancel
Prev
Next
OK

Diag Failed

1. Continue
2. View fail diags
3. Shutdown

If you select "View fail diags", the tests that failed are displayed as in the following example.



RTC Self

General 7040 Printer Controller system error conditions

When you install system software or start up the 7040 Printer Controller, you may encounter one of the following error conditions.

During installation of system software

- The message Receiving... hangs at less than 100% of the file

  Check the amount of disk space free on the PC connected to the parallel port. If less than 200MB is free, then delete unnecessary files on the C:\drive and prepare to start the installation procedure over from the beginning. Delete the DOS file from the Windows 95 print queue and wait for the 7040 Printer Controller parallel port time out which will occur after about two minutes.

After installation of Flash Upgrade

- The Main Block is updated but the Boot Block is unchanged (verified by performing the procedure "To check the Flash version" on page 3-30)

  Remove the HDD as described on page 3-9 and install a jumper on jumper area J10 (located under the HDD on the 7040 Printer Controller). Reinstall the HDD as described on page 3-10 then install the Flash upgrade again.

Checking the network

Printing problems may arise if the network hardware or software is not set up properly or does not match network settings on the 7040 Printer Controller. Problems may also arise when printing from a specific application or printing a particular file.

Most of these problems show up as printing problems and do not necessarily indicate a 7040 Printer Controller malfunction. The customer's network administrator can eliminate many printing problems without requiring you to make a service call. The network administrator deals with:

- Copier error conditions
- Network connection problems that result in the copier not appearing in list of printers on the customer's computers

NOTE: If the copier does not appear in the list of printers on the network, there may be another device on the network with the same Ethernet hardware address

- Conflicting network settings in Setup and on the customer's computers.
- Printing problems caused by inappropriate Setup options
- Application-specific printing errors caused by missing or incorrectly installed printer description files

Printing to the 7040 Printer Controller

If the customer can print a 7040 Printer Controller Test Page but cannot print a job from a computer on the network, you may have to make a service call. However, first make sure the network administrator has done the following:

- Checked all components of the network including cables, connectors, terminators, network adapter boards, and network drivers.
- Activated the network and used it to communicate with other printers.
- Checked the corrective actions listed in "7040 Printer Controller Error Messages" in the *User Guide*.
- Confirmed that the applicable network settings in Setup (such as `AppleTalk zone`, `IP address`, `Subnet mask`, and `Gateway address`) match the settings used in the network.

When you make a service call, check the 7040 Printer Controller faceplate at the back of the copier to make sure that the appropriate network connection is in place.

Print quality problems are difficult to trace. Before you try to troubleshoot print quality problems, print a Test Page to make sure that the copier does not need servicing or adjusting. Also, make sure the correct paper is being used in the copier.

NOTE: EPS file generation is not completely standardized among applications. Some users may encounter problems while printing certain EPS files.

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